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Search Results - Record(s) 1 through 10 of 27 returned.

☐ 1. Document ID: US 6270763 B1

L6: Entry 1 of 27 File: USPT Aug 7, 2001

US-PAT-NO: 6270763
DOCUMENT-IDENTIFIER: US 6270763 B1

TITLE: Cloning and recombinant production of vespid venum phospholipases, and immunological therapies based thereon

DATE-ISSUED: August 7, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
King; Te Piao	New York	NY	10021	N/A

US-CL-CURRENT: 424/94.6; 435/198, 435/252.3, 435/252.33, 435/320.1, 530/350, 536/23.1, 536/23.2, 536/23.5

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 2. Document ID: US 6242568 B1

L6: Entry 2 of 27 File: USPT Jun 5, 2001

US-PAT-NO: 6242568
DOCUMENT-IDENTIFIER: US 6242568 B1

TITLE: Zinc finger protein derivatives and methods therefor

DATE-ISSUED: June 5, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Barbas, III; Carlos F.	San Diego	CA	N/A	N/A
Gottesfeld; Joel M.	San Diego	CA	N/A	N/A
Wright; Peter E.	La Jolla	CA	N/A	N/A

US-CL-CURRENT: 530/350; 435/252.3, 435/320.1, 435/417, 435/69.1, 530/400, 536/23.5, 536/23.6, 536/23.72

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 3. Document ID: US 6239327 B1

L6: Entry 3 of 27 File: USPT May 29, 2001

US-PAT-NO: 6239327
DOCUMENT-IDENTIFIER: US 6239327 B1

TITLE: Seed specific polycomb group gene and methods of use for same

DATE-ISSUED: May 29, 2001

INVENTOR-INFORMATION:				
NAME	CITY	STATE	ZIP CODE	COUNTRY
Grossniklaus; Ueli	Cold Spring Harbor	NY	N/A	N/A
Vielle-Calzada; Jean-Philippe	Huntington	NY	N/A	N/A

US-CL-CURRENT: 800/278; 435/252.3, 435/320.1, 435/419, 435/468, 435/6, 435/69.1, 536/23.1, 536/23.6, 800/284, 800/290, 800/295, 800/298

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 4. Document ID: US 6225526 B1

L6: Entry 4 of 27 File: USPT May 1, 2001

US-PAT-NO: 6225526
DOCUMENT-IDENTIFIER: US 6225526 B1

TITLE: DNA molecules which code for a plastid 2-oxoglutarate/malate

DATE-ISSUED: May 1, 2001

INVENTOR-INFORMATION:				
NAME	CITY	STATE	ZIP CODE	COUNTRY
Flugge; Ulf-Ingo	Koln	N/A	N/A	DEX
Weber; Andreas	Koln	N/A	N/A	DEX
Fischer; Karsten	Hurth-Efferen	N/A	N/A	DEX

US-CL-CURRENT: 800/278; 435/419, 435/468, 435/69.1, 800/284

Full | Title | Citation | Front | Review | Classification | Date | Reference | KWIC | Draw Desc | Image

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☐ 5. Document ID: US 6207153 B1

L6: Entry 5 of 27 File: USPT Mar 27, 2001

US-PAT-NO: 6207153
DOCUMENT-IDENTIFIER: US 6207153 B1

TITLE: Antigen binding fragments that specifically detect cancer cells, nucleotides encoding the fragments, and use thereof for the prophylaxis and detection of cancers

DATE-ISSUED: March 27, 2001

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Dan; Michael D.	Scarborough	N/A	N/A	CAX
Maiti; Pradip K.	Winnipeg	N/A	N/A	CAX
Kaplan; Howard A.	Winnipeg	N/A	N/A	CAX

US-CL-CURRENT: 424/138.1; 424/141.1, 424/142.1, 424/155.1, 530/387.7, 530/388.8, 530/391.1, 530/391.3, 530/391.7

Full | Title | Citation | Front | Review | Classification | Date | Reference

KWIC | Draw Desc | Image

☐ 6. Document ID: US 6166178 A

File: USPT Dec 26, 2000

L6: Entry 6 of 27

US-PAT-NO: 6166178
DOCUMENT-IDENTIFIER: US 6166178 A

TITLE: Telomerase catalytic subunit

DATE-ISSUED: December 26, 2000

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Cech; Thomas R.	Boulder	CO	N/A	N/A
Lingner; Joachim	Boulder	CO	N/A	N/A

US-CL-CURRENT: 530/324; 530/827, 530/828, 536/23.2, 536/23.5

Full | Title | Citation | Front | Review | Classification | Date | Reference

KWIC | Draw Desc | Image

☐ 7. Document ID: US 6143543 A

File: USPT Nov 7, 2000

L6: Entry 7 of 27

US-PAT-NO: 6143543
DOCUMENT-IDENTIFIER: US 6143543 A

TITLE: Enzyme system comprising ferulic acid esterase from Aspergillus

DATE-ISSUED: November 7, 2000

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Michelsen; Birgit	Frederiksberg	N/A	N/A	DKX
De Vries; Ronald Peter	Wageningen	N/A	N/A	NLX
Visser; Jacob	Wageningen	N/A	N/A	NLX
S.o slashed.e; J.o slashed.rn Borch	Mundelstrup	N/A	N/A	DKX
Poulsen; Charlotte Horsmans	Braband	N/A	N/A	DKX
Zargahi; Masoud R.	Aarhus	N/A	N/A	DKX

US-CL-CURRENT: 435/196; 435/187, 435/189, 435/195, 435/197

Full | Title | Citation | Front | Review | Classification | Date | Reference | KWIC | Draw Desc | Image

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☐ 8. Document ID: US 6140466 A

L6: Entry 8 of 27 File: USPT Oct 31, 2000

US-PAT-NO: 6140466
DOCUMENT-IDENTIFIER: US 6140466 A

TITLE: Zinc finger protein derivatives and methods therefor

DATE-ISSUED: October 31, 2000

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Barbas, III; Carlos F.	San Diego	CA	N/A	N/A
Gottesfeld; Joel M.	Del Mar	CA	N/A	N/A
Wright; Peter E.	La Jolla	CA	N/A	N/A

US-CL-CURRENT: 530/350; 435/252.3, 435/252.33, 435/320.1, 435/471, 435/69.1, 435/69.7, 530/400, 536/23.5, 536/23.6, 536/23.72

Full | Title | Citation | Front | Review | Classification | Date | Reference | KWIC | Draw Desc | Image

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☐ 9. Document ID: US 6136558 A

L6: Entry 9 of 27 File: USPT Oct 24, 2000

US-PAT-NO: 6136558
DOCUMENT-IDENTIFIER: US 6136558 A

TITLE: Heregulin variants

DATE-ISSUED: October 24, 2000

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Ballinger; Marcus D.	Burlingame	CA	N/A	N/A
Jones; Jennifer T.	San Leandro	CA	N/A	N/A
Fairbrother; Wayne J.	Burlingame	CA	N/A	N/A
Sliwkowski; Mark X.	San Carlos	CA	N/A	N/A
Wells; James A.	Burlingame	CA	N/A	N/A

US-CL-CURRENT: 435/69.1; 435/252.3, 435/320.1, 435/325, 514/2, 530/300, 530/350, 536/23.1

Full | Title | Citation | Front | Review | Classification | Date | Reference KWIC | Draw Desc | Image

☐ 10. Document ID: US 6087167 A

File: USPT Jul 11, 2000

L6: Entry 10 of 27

US-PAT-NO: 6087167
DOCUMENT-IDENTIFIER: US 6087167 A

TITLE: Eck receptor ligands

DATE-ISSUED: July 11, 2000

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Bartley; Timothy D.	Thousand Oaks	CA	N/A	N/A
Boyle; William J.	Moorpark	CA	N/A	N/A
Fox; Gary M.	Newbury Park	CA	N/A	N/A
Welcher; Andrew A.	Glendale	CA	N/A	N/A
Magal; Ella	Thousand Oaks	CA	N/A	N/A
Lindberg; Richard A.	Thousand Oaks	CA	N/A	N/A
Parker; Vann P.	Newbury Park	CA	N/A	N/A

US-CL-CURRENT: 435/325; 435/353, 435/366, 435/368, 514/12

Full | Title | Citation | Front | Review | Classification | Date | Reference KWIC | Draw Desc | Image

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Term	Documents
TRANSGENIC.DWPI,EPAB,JPAB,USPT,PGPB.	15011
TRANSGENICS.DWPI,EPAB,JPAB,USPT,PGPB.	486
PLANT.DWPI,EPAB,JPAB,USPT,PGPB.	405675
PLANTS.DWPI,EPAB,JPAB,USPT,PGPB.	184831
(5 AND (TRANSGENIC SAME PLANT)).USPT,PGPB,JPAB,EPAB,DWPI.	27

Display 10 Documents, starting with Document: 11

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Search Results - Record(s) 11 through 20 of 27 returned.

☐ 11. Document ID: US 6083904 A

File: USPT Jul 4, 2000

L6: Entry 11 of 27

US-PAT-NO: 6083904
DOCUMENT-IDENTIFIER: US 6083904 A

TITLE: Therapeutic and diagnostic methods and compositions based on notch proteins and nucleic acids

DATE-ISSUED: July 4, 2000

INVENTOR-INFORMATION:				
NAME	CITY	STATE	ZIP CODE	COUNTRY
Artavanis-Tsakonas; Spyridon	Hamden	CT	N/A	N/A

US-CL-CURRENT: 514/2; 424/130.1, 424/143.1, 435/7.23, 514/12

Full | Title | Citation | Front | Review | Classification | Date | Reference

KWIC | Draw Desc | Image

☐ 12. Document ID: US 5981219 A

File: USPT Nov 9, 1999

L6: Entry 12 of 27

US-PAT-NO: 5981219
DOCUMENT-IDENTIFIER: US 5981219 A

TITLE: DNA molecules which code for a plastid 2-oxoglutarate/malate translocator

DATE-ISSUED: November 9, 1999

INVENTOR-INFORMATION:				
NAME	CITY	STATE	ZIP CODE	COUNTRY
Flugge; Ulf-Ingo	Koln	N/A	N/A	DEX
Weber; Andreas	Koln	N/A	N/A	DEX
Fischer; Karsten	Hurth-Efferen	N/A	N/A	DEX

US-CL-CURRENT: 435/69.1; 435/252.3, 435/254.11, 435/320.1, 530/350, 530/370, 530/379, 536/23.1, 536/23.6, 536/24.1, 536/24.3

Full | Title | Citation | Front | Review | Classification | Date | Reference

KWIC | Draw Desc | Image

☐ 13. Document ID: US 5939541 A

File: USPT Aug 17, 1999

L6: Entry 13 of 27

US-PAT-NO: 5939541
DOCUMENT-IDENTIFIER: US 5939541 A

TITLE: Method for enhancing expression of a foreign or endogenous gene product in plants

DATE-ISSUED: August 17, 1999

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Vance; Vicki B.	Columbia	SC	N/A	N/A
Pruss; Gail J.	Columbia	SC	N/A	N/A
Dawson; William O.	Winter Haven	FL	N/A	N/A
Carrington; James	Pullman	WA	N/A	N/A
Marton; Laszlo	Columbia	SC	N/A	N/A

US-CL-CURRENT: 536/24.1; 435/320.1, 435/411, 435/468, 536/23.72, 800/287, 800/288

Full | Title | Citation | Front | Review | Classification | Date | Reference KWIC | Draw Desc | Image

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☐ 14. Document ID: US 5929304 A

L6: Entry 14 of 27 File: USPT Jul 27, 1999

US-PAT-NO: 5929304
DOCUMENT-IDENTIFIER: US 5929304 A

TITLE: Production of lysosomal enzymes in plant-based expression systems

DATE-ISSUED: July 27, 1999

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Radin; David N.	Blacksburg	VA	N/A	N/A
Cramer; Carole L.	Blacksburg	VA	N/A	N/A
Oishi; Karen K.	Blacksburg	VA	N/A	N/A
Weissenborn; Deborah L.	Blacksburg	VA	N/A	N/A

US-CL-CURRENT: 800/288; 435/183, 435/206, 435/320.1, 435/410, 435/414, 435/69.1, 536/23.1, 536/23.2, 536/24.1, 800/278, 800/287, 800/294, 800/295, 800/317.3

Full | Title | Citation | Front | Review | Classification | Date | Reference KWIC | Draw Desc | Image

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☐ 15. Document ID: US 5874626 A

L6: Entry 15 of 27 File: USPT Feb 23, 1999

US-PAT-NO: 5874626
DOCUMENT-IDENTIFIER: US 5874626 A

TITLE: Osmotin gene promoter and use thereof

DATE-ISSUED: February 23, 1999

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Bressan; Ray	W. Lafayette	IN	N/A	N/A
Hasegawa; Paul M.	W. Lafayette	IN	N/A	N/A

US-CL-CURRENT: 800/279; 435/252.3, 435/419, 435/468, 536/24.1, 800/278, 800/287, 800/301, 800/317.3

Full | Title | Citation | Front | Review | Classification | Date | Reference | KWIC | Draw Desc | Image

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☐ 16. Document ID: US 5869719 A

L6: Entry 16 of 27 File: USPT Feb 9, 1999

US-PAT-NO: 5869719
DOCUMENT-IDENTIFIER: US 5869719 A

TITLE: Transgenic plants having increased biotin content

DATE-ISSUED: February 9, 1999

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Patton; David A.	Durham	NC	N/A	N/A

US-CL-CURRENT: 800/278; 435/121, 435/412, 435/414, 435/415, 435/419, 435/468, 536/23.6, 536/23.7, 800/298, 800/306, 800/312, 800/317.3, 800/320.1, 800/320.3

Full | Title | Citation | Front | Review | Classification | Date | Reference | KWIC | Draw Desc | Image

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☐ 17. Document ID: US 5859335 A

L6: Entry 17 of 27 File: USPT Jan 12, 1999

US-PAT-NO: 5859335
DOCUMENT-IDENTIFIER: US 5859335 A

TITLE: Enhanced biotin biosynthesis in plant tissue

DATE-ISSUED: January 12, 1999

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Patton; David Andrew	Durham	NC	N/A	N/A

US-CL-CURRENT: 800/278; 435/419, 435/69.1, 536/23.2, 536/23.6, 536/23.7, 800/281, 800/294, 800/298, 800/306, 800/312, 800/317.3, 800/320.1, 800/320.3

Full | Title | Citation | Front | Review | Classification | Date | Reference

KWIC | Draw Desc | Image

☐ 18. Document ID: US 5850016 A

L6: Entry 18 of 27 File: USPT Dec 15, 1998

US-PAT-NO: 5850016
DOCUMENT-IDENTIFIER: US 5850016 A

TITLE: Alteration of amino acid compositions in seeds

DATE-ISSUED: December 15, 1998

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Jung; Rudolf	Des Moines	IA	N/A	N/A
Hastings; Craig	Perry	IA	N/A	N/A
Coughlan; Sean	Des Moines	IA	N/A	N/A
Hu; David	Johnston	IA	N/A	N/A

US-CL-CURRENT: 800/287; 435/320.1, 435/410, 435/415, 435/6, 435/69.1, 536/23.1, 536/23.4, 536/23.6, 800/312

Full | Title | Citation | Front | Review | Classification | Date | Reference

KWIC | Draw Desc | Image

☐ 19. Document ID: US 5844089 A

L6: Entry 19 of 27 File: USPT Dec 1, 1998

US-PAT-NO: 5844089
DOCUMENT-IDENTIFIER: US 5844089 A

TITLE: Genetically fused globin-like polypeptides having hemoglobin-like activity

DATE-ISSUED: December 1, 1998

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Hoffman; Stephen J.	Denver	CO	N/A	N/A
Looker; Douglas L.	Lafayette	CO	N/A	N/A
Rosendahl; Mary S.	Broomfield	CO	N/A	N/A
Stetler; Gary L.	Denver	CO	N/A	N/A
Wagenbach; Michael	Osaka	N/A	N/A	JPX
Anderson; David C.	Lafayette	CO	N/A	N/A
Mathews; Antony James	Louisville	CO	N/A	N/A
Nagai; Kiyoshi	Cambridge	N/A	N/A	GB2

US-CL-CURRENT: 530/385

Full | Title | Citation | Front | Review | Classification | Date | Reference

KWIC | Draw Desc | Image

☐ 20. Document ID: US 5844088 A

File: USPT Dec 1, 1998

L6: Entry 20 of 27

US-PAT-NO: 5844088
DOCUMENT-IDENTIFIER: US 5844088 A

TITLE: Hemoglobin-like protein comprising genetically fused globin-like polypeptides

DATE-ISSUED: December 1, 1998

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Hoffman; Stephen J.	Denver	CO	N/A	N/A
Looker; Douglas L.	Lafayette	CO	N/A	N/A
Rosendahl; Mary S.	Broomfield	CO	N/A	N/A
Stetler; Gary L.	Denver	CO	N/A	N/A
Wagenbach; Michael	Osaka	N/A	N/A	JPX
Anderson; David C.	Lafayette	CO	N/A	N/A
Mathews; Antony James	Louisville	CO	N/A	N/A
Nagai; Kiyoshi	Cambridge	N/A	N/A	GB2

US-CL-CURRENT: 530/385

Full | Title | Citation | Front | Review | Classification | Date | Reference

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Term	Documents
TRANSGENIC.DWPI,EPAB,JPAB,USPT,PGPB.	15011
TRANSGENICS.DWPI,EPAB,JPAB,USPT,PGPB.	486
PLANT.DWPI,EPAB,JPAB,USPT,PGPB.	405675
PLANTS.DWPI,EPAB,JPAB,USPT,PGPB.	184831
(5 AND (TRANSGENIC SAME PLANT)).USPT,PGPB,JPAB,EPAB,DWPI.	27

Display 10 Documents, starting with Document: 21

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Search Results - Record(s) 21 through 27 of 27 returned.

☐ 21. Document ID: US 5801028 A

L6: Entry 21 of 27 File: USPT Sep 1, 1998

US-PAT-NO: 5801028
DOCUMENT-IDENTIFIER: US 5801028 A

TITLE: Osmotin gene promoter and use thereof

DATE-ISSUED: September 1, 1998

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Bressan; Ray	W. Lafayette	IN	N/A	N/A
Hasegawa; Paul M.	W. Lafayette	IN	N/A	N/A

US-CL-CURRENT: 800/279; 435/200, 435/320.1, 435/419, 536/23.6, 536/24.5

Full | Title | Citation | Front | Review | Classification | Date | Reference | KWIC | Draw. Desc | Image

☐ 22. Document ID: US 5801019 A

L6: Entry 22 of 27 File: USPT Sep 1, 1998

US-PAT-NO: 5801019
DOCUMENT-IDENTIFIER: US 5801019 A

TITLE: DNA encoding fused alpha-beta globin pseudodimer and production of pseudotetrameric hemoglobin

DATE-ISSUED: September 1, 1998

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Anderson; David C.	Lafayette	CO	N/A	N/A
Mathews; Antony James	Louisville	CO	N/A	N/A

US-CL-CURRENT: 435/69.6; 435/69.1, 435/69.7, 530/385, 536/23.4

Full | Title | Citation | Front | Review | Classification | Date | Reference | KWIC | Draw. Desc | Image

☐ 23. Document ID: US 5786158 A

L6: Entry 23 of 27 File: USPT Jul 28, 1998

US-PAT-NO: 5786158
DOCUMENT-IDENTIFIER: US 5786158 A

TITLE: Therapeutic and diagnostic methods and compositions based on notch proteins and nucleic acids

DATE-ISSUED: July 28, 1998

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Artavanis-Tsakonas; Spyridon	Hamden	CT	N/A	N/A
Fehon; Richard Grant	Durham	NC	N/A	N/A
Zagouras; Panayiotis	New Haven	CT	N/A	N/A
Blaumueller; Christine Marie	New Haven	CT	N/A	N/A

US-CL-CURRENT: 435/7.23; 435/7.1, 435/7.92, 436/63, 436/64, 436/811, 436/813, 436/815

Full | Title | Citation | Front | Review | Classification | Date | Reference KWIC | Draw Desc | Image

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☐ 24. Document ID: US 5744329 A

L6: Entry 24 of 27 File: USPT Apr 28, 1998

US-PAT-NO: 5744329
DOCUMENT-IDENTIFIER: US 5744329 A

TITLE: DNA encoding fused di-beta globins and production of pseudotetrameric hemoglobin

DATE-ISSUED: April 28, 1998

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Hoffman; Stephen J.	Denver	CO	N/A	N/A
Looker; Douglas L.	Lafayette	CO	N/A	N/A
Rosendahl; Mary S.	Broomfield	CO	N/A	N/A
Stetler; Gary L.	Denver	CO	N/A	N/A
Wagenbach; Michael	Osaka	N/A	N/A	JPX
Anderson; David C.	Lafayette	CO	N/A	N/A
Mathews; Antony James	Louisville	CO	N/A	N/A
Nagai; Kiyoshi	Cambridge	N/A	N/A	GB2

US-CL-CURRENT: 435/69.6; 435/69.1, 435/69.7, 530/385, 536/23.4

Full | Title | Citation | Front | Review | Classification | Date | Reference KWIC | Draw Desc | Image

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☐ 25. Document ID: US 5612209 A

L6: Entry 25 of 27 File: USPT Mar 18, 1997

US-PAT-NO: 5612209
DOCUMENT-IDENTIFIER: US 5612209 A

TITLE: Cloning and recombinant production of vespid venom phospholipases, and immunological therapies based thereon

DATE-ISSUED: March 18, 1997

INVENTOR-INFORMATION:				
NAME	CITY	STATE	ZIP CODE	COUNTRY
King; Te P.	New York	NY	N/A	N/A

US-CL-CURRENT: 435/198; 435/320.1, 435/69.1, 530/300, 536/23.2, 536/23.5, 536/24.31

Full | Title | Citation | Front | Review | Classification | Date | Reference

KWIC | Draw Desc | Image

☐ 26. Document ID: US 5599676 A

L6: Entry 26 of 27 File: USPT Feb 4, 1997

US-PAT-NO: 5599676
DOCUMENT-IDENTIFIER: US 5599676 A

TITLE: Method for isolating a novel receptor for .alpha.4 integrins

DATE-ISSUED: February 4, 1997

INVENTOR-INFORMATION:				
NAME	CITY	STATE	ZIP CODE	COUNTRY
Vonderheide; Robert H.	Brookline	MA	N/A	N/A
Springer; Timothy A.	Chestnut Hill	MA	N/A	N/A

US-CL-CURRENT: 435/7.2; 435/252.3, 435/252.33, 435/254.11, 435/320.1, 435/69.1, 435/91.1, 530/387.1, 536/23.1

Full | Title | Citation | Front | Review | Classification | Date | Reference

KWIC | Draw Desc | Image

☐ 27. Document ID: US 5545727 A

L6: Entry 27 of 27 File: USPT Aug 13, 1996

US-PAT-NO: 5545727
DOCUMENT-IDENTIFIER: US 5545727 A

TITLE: DNA encoding fused di-alpha globins and production of pseudotetrameric hemoglobin

DATE-ISSUED: August 13, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hoffman; Stephen J.	Denver	N/A	N/A	N/A
Looker; Douglas L.	Lafayette	CO	N/A	N/A
Nagai; Kiyoshi	Cambridge	N/A	N/A	GB2

US-CL-CURRENT: 536/23.4; 530/385, 536/23.5

Full | Title | Citation | Front | Review | Classification | Date | Reference

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Term	Documents
TRANSGENIC.DWPI,EPAB,JPAB,USPT,PGPB.	15011
TRANSGENICS.DWPI,EPAB,JPAB,USPT,PGPB.	486
PLANT.DWPI,EPAB,JPAB,USPT,PGPB.	405675
PLANTS.DWPI,EPAB,JPAB,USPT,PGPB.	184831
(5 AND (TRANSGENIC SAME PLANT)).USPT,PGPB,JPAB,EPAB,DWPI.	27

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             96  S5
         190709  PORCINE?
      S6     10  S5 AND PORCINE?
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6/3,AB/1 (Item 1 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

09233049 96393736 PMID: 8800509
Acquired inhibitors.
Cohen AJ; Kessler CM
St. Michael's Medical Center, Newark, NJ 07102, USA.
Bailliere's clinical haematology (ENGLAND) Jun 1996, 9 (2) p331-54,
ISSN 0950-3536 Journal Code: BCH
Languages: ENGLISH
Document type: Journal Article; Review; Review, Academic
Record type: Completed

Factor VIII auto-antibody inhibitors, though rare, may present significant and often life-threatening haemorrhage. These auto-antibodies, arising predominantly in older individuals, occur in association with autoimmune disorders, lymphoproliferative disorders, solid tumours, medications and the postpartum state. Almost half of the patients develop auto-antibodies spontaneously without an underlying medical condition. Factor VIII auto-antibody inhibitors are characterized as polyclonal IgG immunoglobulins directed against the FVIII procoagulant activity. Laboratory diagnosis is made by performing the aPTT clotting time in conjunction with a mixing study, and subsequently with specific factor assays. Auto-antibodies are quantified most commonly utilizing the Bethesda assay. Acquired inhibitors to other **coagulation** factors, including factors IX, XI, XIII, vWF protein, and the vitamin K-dependent proteins are extremely rare. The principles of therapy are similar to those which apply to the management of factor VIII auto-antibodies. **Treatment** of patients with acquired factor VIII auto-antibody inhibitors varies depending upon the underlying medical condition, the titre of the inhibitor, and the clinical presentation. Acutely bleeding patients with high-titre auto-antibodies generally respond well with **infusions** of **porcine** factor VIII concentrate, PCCs or rFVIIa. Extracorporeal plasmapheresis with exchange will acutely reduce circulating antibodies and can be used in conjunction with factor **infusions** and/or IgIV. Haemorrhage in a patient with a low titre auto-antibody will usually respond to high doses of human factor VIII concentrate. DDAVP may also increase factor VIII levels in patients with low-titre inhibitors. Long-term reduction of auto-antibodies can be achieved by immuno-suppressive regimens using steroids and/or cytotoxic agents, IgIV and interferon-alpha. The selection of the appropriate **treatment** depends upon the associated medical condition, likelihood of spontaneous remission, risk of toxicities of therapy and cost. Determining the efficacy and safety of new **treatment** modalities for factor VIII auto-antibodies and other **coagulation** factor inhibitors will require multicentre randomized clinical trials.

6/3,AB/2 (Item 2 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

08087094 95192840 PM[redacted] 7886576
Inhibitors of factor V[redacted]: detection and **treatment**.
Brettler DB
University of Massachusetts Medical School, Worcester 01605.
Southeast Asian journal of tropical medicine and public health (THAILAND) 1993, 24 Suppl 1 p21-5, ISSN 0038-3619 Journal Code: UVN
Languages: ENGLISH
Document type: Journal Article; Review; Review, Tutorial
Record type: Completed
Alloantibodies occurring in hemophiliacs is a side effect or repeated **treatment** and represents a severe complication. The induction of immune tolerance using one of the lower dose regimens should be attempted as soon as it is feasible as regimens started soon after the inhibitor appears may have greater success in inducing tolerance. If the hemophiliac with inhibitor hemorrhages, PCC for aPCC should be the first line of therapy since these concentrates can be given in the home setting. If the hemorrhage is severe and the anti-**porcine** inhibitor titer is low, the patient should be **infused** in a clinic or hospital setting with **porcine** factor VIII using increasing doses to achieve a circulating factor VIII level. Entry into clinical trials, such as those using rFVIIa should be encouraged.

6/3,AB/3 (Item 3 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

07057062 93319076 PMID: 8328652
An inhibitor of antihemophilic factor (factor VIII) in an 18-month-old nonhemophilic child.
Stein J; Ratnoff OD
Department of Pediatrics, Rainbow Babies and Children's Hospital, Cleveland, Ohio.
American journal of pediatric hematology/oncology (UNITED STATES) Aug 1993, 15 (3) p346-50, ISSN 0192-8562 Journal Code: 35P
Contract/Grant No.: HL01661, HL, NHLBI
Languages: ENGLISH
Document type: Journal Article
Record type: Completed
PURPOSE: Inhibitors of factor VIII occur in < or = 20% of severely affected patients with classic **hemophilia** , but are unusual in nonhemophilic individuals, and have not been reported in very young children. We **treated** a child with a "high-responding" inhibitor. PATIENT AND METHODS: Our patient was an 18-month-old boy who had experienced several episodes of life-threatening hemorrhage. The techniques we used to decrease production of factor VIII in our patient were prolonged small doses of alternate day corticosteroids and continued administration of factor VIII. RESULTS: We controlled the acute bleeding with **porcine** factor VIII or with recombinant human factor VIIa (rFVIIa). Immune tolerance was successfully achieved using a combination of corticosteroids and daily factor VIII **infusions** . CONCLUSIONS: Multimodal therapy aimed at inducing long-term remission, along with stop-gap measures for hemostasis, may be effective for **treating** children with this acquired coagulopathy.

6/3,AB/4 (Item 4 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

04104594 84272874 PMID: 6431438
The management of factor VIII inhibitors in non-hemophilic patients.
Green D
Progress in clinical and biological research (UNITED STATES) 1984, 150 p337-52, ISSN 0361-7742 Journal Code: PZ5
Languages: ENGLISH
Document type: Journal Article

Record type: Completed
The experience of [redacted] 118 **coagulation** specialis[redacted] in the **treatment** of 215 non-hemophilic patients with inhibitors to factor VIII:C was recently reviewed. In approximately half these patients there were no illnesses which may have predisposed to inhibitor formation, while "auto-immune" disorders such as rheumatoid arthritis and systemic lupus erythematosus were present in 18%. Major bleeding was reported in 87% of the patients, and 22% died as a consequence of having the inhibitor. While inhibitors in a few patients, particularly those that developed in association with pregnancy, disappeared without **treatment** , most patients were given prednisone in doses of up to 2 mg/kg per day. This therapy was most effective in patients without associated disorders, but disappearance of the inhibitor in patients with rheumatoid arthritis usually occurred only when cyclophosphamide or azathioprine was added to the therapeutic regimen. Subjects with inhibitor titers in excess of 10 Bethesda Units were usually refractory to all therapeutic modalities. The management of acute bleeding episodes in the patient with an inhibitor has been the subject of a number of recent reports. Successful stratagems have included intensive plasmapheresis combined with massive **infusion** of antihemophilic factor concentrates, the use of **porcine** factor VIII concentrates, and the administration of clotting factor concentrates which bypass the locus of factor VIII participation in clotting. All of these methods expose the patient to potential serious side-effects, and the ultimate solution to the problem of the development of factor VIII inhibitors will require insights into the reasons for the production of these antibodies and measures to regulate aberrant immune processes.

6/3,AB/5 (Item 5 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

04102575 85041086 PMID: 6437005
Use of **porcine** factor VIII in the management of seventeen patients with factor VIII antibodies.
Gatti L; Mannucci PM
Thrombosis and haemostasis (GERMANY, WEST) Jul 29 1984, 51 (3) p379-84, ISSN 0340-6245 Journal Code: VQ7
Languages: ENGLISH
Document type: Journal Article
Record type: Completed
A polyelectrolyte-fractionated **porcine** factor VIII concentrate was given to 16 hemophiliacs with anti-F VIII antibodies (Ab) and to a woman with post-partum-acquired Ab during 24 courses of **treatment** including three major surgical procedures. Before **treatment**, antiporcine F VIII Ab was always lower than anti-human F VIII Ab, with a median cross reactivity of 32%. After **treatment**, the mean rise in F VIII was 1.5 U/dl/Unit **infused** /Kg b.w. and in vivo recovery was 50% of the theoretical values. Anamnestic rises in anti-**porcine** F VIII Ab (3 X the baseline titer) were seen after 9 of 22 courses of **treatment** with **porcine** F VIII only; similar rises in anti-human F VIII Ab, after 6 courses of **treatment** ; median cross reactivity did not change significantly. Lower than expected increases in plasma F VIII without marked changes in Ab titers and severe thrombocytopenia occurred during surgery in two patients. **Porcine** F VIII is a rational and effective therapeutic choice for patients who have anti-human Ab titers above 10 U/ml; it can solve clinical situations that would otherwise be very difficult to manage; anamnesis is perhaps less frequent than after human F VIII; however, the incidence of thrombocytopenia, resistance and other side-effects is still higher than desirable.

6/3,AB/6 (Item 1 from file: 144)
DIALOG(R)File 144:Pascal
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14731192 PASCAL No.: [redacted]-0407571
Inhibitor antibodies t[redacted]actor VIII and factor IX : Man[redacted]ment
Coagulation inhibitors
LUSHER J M
KAPLAN Joseph, ed; SECORD Elizabeth, ed
Children's Hospital of Michigan, Detroit, Michigan, United States
Department of Pediatrics, Children's Hospital of Michigan, 3901 Beaubien
Blvd., Detroit, MI 48201, United States
Journal: Seminars in thrombosis and hemostasis, 2000, 26 (2) 179-188
Language: English

Inhibitor antibodies directed against factor VIII or factor IX present challenges to the clinician. Fortunately, several management options are available, although each has disadvantages as well as advantages. Alloantibodies against factor VIII (which develop in 25 to 50% of children with severe **hemophilia** A, as well as in a small percentage of children with mild or moderate **hemophilia** A) may be low titer and transient or may be high titer. Most patients with high-titer problematic inhibitors now try to eliminate the inhibitor by using one of several immune tolerance induction (ITI) regimens. For **treatment** of bleeding episodes in patients who have high-titer (>= 5 Bethesda units) inhibitors, one can use a prothrombin complex concentrate (PCC) (preferably an activated PCC (APCC)), recombinant (r) factor VIIa, or **porcine** factor VIII. The choice of product is generally dependent on the type and severity of the patient's bleeding, degree of cross-reactivity of the patient's inhibitor with **porcine** factor VIII, physician familiarity with the product, product availability, and cost. In persons with **hemophilia** B, alloantibodies occur in only 1 to 3% of severely affected individuals. However, in roughly half of those who develop inhibitors, anaphylaxis or severe allergic reactions occur on **infusion** of any type of factor IX-containing product. This phenomenon usually develops after relatively few exposures to factor IX; thus it is recommended that the first 10 to 20 **infusions** of factor IX given to children with severe **hemophilia** B be given in a setting equipped for **treatment** of shock. For **treatment** of bleeding episodes in patients with severe allergic reactions, rF VIIa is the **treatment** of choice. ITI has been less successful in **hemophilia** B patients with inhibitors than in those with **hemophilia** A, and in a subgroup of patients with severe allergic reactions who were desensitized to factor IX and then tried on ITI, results were even poorer. Additionally, several developed nephrotic syndrome while on ITI. For **hemophilia** B patients with inhibitors who do not have allergic reactions to factor IX, bleeding episodes can be **treated** with PCC or APCC or with rF VIIa. Autoantibodies directed against factor VIII are rare but can occur in a variety of settings. They occur mainly in adults, and bleeding is often severe and life threatening. Although some factor VIII autoantibodies disappear spontaneously, most require immunosuppression. Corticosteroids and cyclophosphamide are generally recommended. For **treatment** of bleeding, therapeutic options include (human) factor VIII concentrates, **porcine** factor VIII, APCC, and rFVIIa. The choice of product is generally determined by the consulting hematologist's familiarity with the product, product availability and cost, as well as response to **treatment**.

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6/3,AB/7 (Item 2 from file: 144)
DIALOG(R)File 144:Pascal
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14627066 PASCAL No.: 00-0297638
Epsilon-aminocaproic acid inhibits the activity of factor VIII inhibitors in patients with severe haemophilia A in vivo and in vitro
GHOSH K; SHETTY S; PATHARE A; MOHANTY D
Institute of Immunohaematology (ICMR), Mumbai, India; J.C. Patel Department of Haematology, KEM Hospital, Mumbai, India

Journal: Acta Haematologica, 2000, 103 (2) 67-72
Language: English

Haemophilia patients with inhibitors pose a formidable challenge for patient management. This is particularly problematic in developing countries, where **porcine** factor VIII, FEIBA, factor VIIa or immunoadsorption column are generally unavailable or unaffordable. Under these circumstances, any effective modality of affordable **treatment** is welcome. We investigated, both in vivo and in vitro, the effect of epsilon -aminocaproic acid (EACA) on the inhibitory activity of factor VIII inhibitor. It was found that in vitro EACA (final concentration 1.25-5 mg/ml) substantially inhibited the activity of the inhibitors, while the same concentration of EACA had no effect on other immunological reactions like red cell agglutination and immunofluorescence. The inhibitory action of EACA on factor VIII inhibitor was also confirmed in an improvised antigen-binding ELISA system. Further, the inhibitory activity of EACA was confirmed in 2 patients, in whom the inhibitory activity persisted for 15 min following **infusion** of EACA (100 mg/kg over 10 min). EACA was found to be even more effective in local wound application in patients of haemophilia A with inhibitors. EACA at the concentration cited did not act as an inhibitor of factor VIII inhibitor through occupancy of lysine binding sites. The inhibitory activity of EACA on factor VIII inhibitor was equally seen with recombinant factor VIII also; hence this action cannot be explained by its antifibrinolytic activity.

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6/3,AB/8 (Item 3 from file: 144)
DIALOG(R)File 144:Pascal
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13246341 PASCAL No.: 97-0516193
Continuous **infusion** of **porcine** factor VIII in the management of patients with factor VIII inhibitors

RUBINGER M; HOUSTON D S; SCHWETZ N; WOLOSCHUK D M M; ISRAELS S J; JOHNSTON J B

Department of Medicine, Division of Hematology/Oncology, University of Manitoba, Winnipeg, Canada; Bleeding Disorders Program, Children's Centre, Health Sciences Centre, Winnipeg, Canada; Department of Pharmaceutical Services, Health Sciences Centre, Winnipeg, Canada; Department of Pediatrics, Division of Hematology/Oncology, University of Manitoba, Winnipeg, Canada

Journal: American journal of hematology, 1997, 56 (2) 112-118
Language: English

The effectiveness of continuous **infusion porcine** factor VIII (PFVIII) has been evaluated in the **treatment** of 7 consecutive patients with factor VIII(FVIII) inhibitors. Two patients had **hemophilia** A and five were nonhemophiliacs with acquired FVIII inhibitors. The median pretreatment antiporcine FVIII titre was 0.2 (range: 0-15.0) Bethesda units (BU), and the anti-human FVIII titer was 12.0 BU (range: 2.4-50.0). All patients presented with major bleeding. Patients were given a bolus dose of PFVIII followed by continuous **infusion**. Six patients also received immunosuppressive therapy. Therapeutic FVIII levels (>0.5 U/ml) were achieved in 6 of 7 patients at a median time of 12.5 hr, and then maintained with continuous **infusion** PFVIII. Six patients were **treated** for more than 7 days, and in four of these there was a decline in FVIII recovery between days 7 to 11, presumably related to a rising antibody response to PFVIII. These four patients were plasmapheresed and the three patients with autoantibodies recovered therapeutic FVIII levels but this did not occur in the patient with **hemophilia** . Thrombocytopenia developed in 4 patients at days 18 to 24, with the platelet count falling to 11 to 87 x 10 SUP 9 /L, and the PFVIII was discontinued in 3 patients. All patients recovered from the acute bleeding events. With prolonged immunosuppressive therapy, the FVIII inhibitor disappeared in all patients with autoantibodies and there have

been no relapses after a median follow-up period of 581 days. This study demonstrates that continuous **infusion** PFVIII is an effective therapy for patients with FVIII inhibitors, but that prolonged **treatment** is associated with the development of inhibitors to **porcine** FVIII and severe thrombocytopenia, which readily corrects with discontinuation of PFVIII.

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6/3,AB/9 (Item 4 from file: 144)
DIALOG(R)File 144:Pascal
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13197230 PASCAL No.: 97-0461508
Loss of tolerance to exogenous and endogenous factor VIII in a mild **hemophilia** A patient with an Arg SUP 5 SUP 9 SUP 3 to cys mutation
THOMPSON A R; MURPHY M E P; LIU M; SAENKO E L; HEALEY J F; LOLLAR P; SCANDELLA D
Puget Sound Blood Center and Departments of Medicine & Biological Structure, University of Washington, Seattle, United States; Holland Laboratory, American Red Cross, Rockville, MD, United States; Department of Medicine, Emory University, Atlanta, GA, United States
Journal: Blood, 1997, 90 (5) 1902-1910
Language: English
A 42-year-old patient with mild **hemophilia** A developed spontaneous muscle hematomas 1 month after intense therapy with factor VIII concentrates. Factor VIII clotting activity was less than 1% and his factor VIII inhibitor was 10 Bethesda units (BU)/mL. The titer peaked at 128 BU despite daily **infusions** of factor VIII ; 1 year later, the titer was 13 BU with no spontaneous bleeding for 4 months. The plasma inhibitor was 95% neutralized by factor VIII A2 domain but less than 15% neutralized by light-chain or C2 domain. His inhibitor did not cross-react with **porcine** factor VIII and was at least 10-fold less reactive to a series of hybrid factor VIII proteins in which human residues 484-508 are replaced by the homologous **porcine** sequence (Healey et al, J Biol Chem 270:14505, 1995). The inhibitor patient's DNA encoding his A2 domain and flanking sequences showed a C-T transition predicting Arg SUP 5 SUP 9 SUP 3 to Cys. Thirteen patients from 5 unrelated families with Cys SUP 5 SUP 9 SUP 3 have not developed inhibitors. Factor VIII clotting activity from one of them was inhibited similarly to diluted normal plasma by inhibitor patient plasma. In an homologous structure, ceruloplasmin (Zaitseva et al, J Biol Inorgan Chem 1:15,1996), the residue equivalent to Arg SUP 5 SUP 9 SUP 3 , is in a loop distinct from residues 484-508. On solution phase immunoprecipitation with labeled factor VIII fragments, A2, light chain, and C2 domains bound. In contrast to typical immune responses to factor VIII in patients with severe **hemophilia** A, this patient's inhibitor was almost entirely reactive with common epitopes within the A2 domain whereas by more sensitive immunoprecipitation testing antibodies to light chain epitopes were also present. Accordingly, immune responsiveness to exogenous factor VIII (antigen burden) appears to be more critical than his endogenous, hemophilic factor VIII to his developing high-titer anti-factor VIII antibodies and loss of tolerance to both native and hemophilic factor VIII proteins.

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6/3,AB/10 (Item 5 from file: 144)
DIALOG(R)File 144:Pascal
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12449631 PASCAL No.: 96-0107056
Safety profile of **porcine** factor VIII and its use as hospital and home-therapy for patients with haemophilia-A and inhibitors : the results

of an international surv[redacted]
HAY C R M; LOZIER J N[redacted]E C A; LAFFAN M; TRADATI F; S[redacted]AGOSTINO E; CIAVARELLA N; SCHIAVONI M; FUKUI H; YOSHIOKA A; TEITEL J; MANNUCCI P M; KASPER C K

Royal Liverpool univ. hosp., univ. dep. haematology, Liverpool, United Kingdom

Journal: Thrombosis and haemostasis, 1996, 75 (1) 25-29

Language: English

A multicentre retrospective survey was conducted to re-assess the use of **porcine** factor VIII (HYATE :C), its side effects and the selection of patients for regular or home-therapy. 15,152,000 units of HYATE : C were used by 154 patients. The median inhibitor cross-reactivity to **porcine** VIIIC of 137 patients was 15%, 27% of patients lacking cross-reactivity. An absent, intermediate or brisk specific anti-**porcine** anamnestic response was observed in 29, 40 and 31% of patients respectively. Seven patients were **treated** on-demand as home-therapy for a median 6.2, range 1.5-13 years. 23 further patients were **treated** regularly in hospital for a median of 3, range 2-7 years. This group used 8,319,000 U of **porcine** VIIIC for 2,000 bleeding episodes. The incidence of transfusion reactions was 0.001%, 0.64% and 2.3%, for domiciliary **infusions**, **infusions** in multiply **treated** inpatients, and unselected in-patient **infusions** , respectively. The risk of reactions was dose-related. A post-**infusion** fall in platelet count was common, but usually transient and clinically insignificant. This was also dose-related ($r = -0.64$, $p = 0.002$). Marked reductions in platelet count were occasionally seen, usually with intensive replacement therapy. The relative lack of side effects observed amongst patients **treated** at home is attributable to the low, median 33 U/kg, dose used by this group. A subgroup of inhibitor patients, identifiable by their absent or modest anamnestic response to **porcine** factor VIII may be **treated** regularly and safely with this product in small doses,

human fVIIIa is unstable relative to **porcine** fVIIIa during the coagulation assay

18/3,AB/16 (Item 1 from file: 266)
DIALOG(R)File 266:FEDRIP
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00324377
IDENTIFYING NO.: 5R01HL53777-05 AGENCY CODE: CRISP
ADENOVIRUS--MEDIATED DELIVERY OF NOVEL FACTOR **VIII**
PRINCIPAL INVESTIGATOR: KAUFMAN, RANDAL J
ADDRESS: UNIVERSITY OF MICHIGAN 1301 CATHERINE ROAD ANN ARBOR, MI 48109-0606
PERFORMING ORG.: UNIVERSITY OF MICHIGAN AT ANN ARBOR, ANN ARBOR, MICHIGAN
SPONSORING ORG.: NATIONAL HEART, LUNG, AND BLOOD INSTITUTE
FY : 2001

SUMMARY: Factor **VIII** is the plasma protein that is functionally deficient in the clinical bleeding disorder hemophilia A. Patients require frequent infusions of factor **VIII** in order to maintain hemostasis. Factor **VIII** is synthesized in the hepatocyte and is secreted into the circulation where it is stabilized by non-covalent interactions with von Willebrand factor (vWF). Isolation of the factor **VIII** gene identified its domain structure of A1-**A2**-B-A3-C1-C2 and enabled production of recombinant-derived factor **VIII**. Recombinant-derived factor **VIII** has minimized potential therapeutic complications associated with plasma-derived factor **VIII** , although significant limitations remain. Thus, the ultimate treatment for Hemophilia A would be a genetic cure for the disease. However, important questions need to be answered before gene therapy for hemophilia A becomes a reality. The proposed studies focus on three fundamental aspects that regulate factor **VIII** expression and activity. First, factor **VIII** expression in cultured mammalian cells is limited due to both inefficient rnRNA expression and protein secretion. The newly synthesized factor **VIII** is retained in the lumen of the endoplasmic reticulum (ER) in a complex with the immunoglobulin binding protein BiP and is inefficiently secreted. Recent results indicate that the limited factor **VIII** mRNA accumulation is coupled with factor **VIII** protein synthesis. The proposed studies will develop a hepatocyte-targeted adenoviral-based factor **VIII** gene delivery system to elucidate if similar limitations in factor VIll expression occur in vivo. Second, in the circulation, the ratio of vWF to factor **VIII** is tightly maintained at 50:1, although the mechanism responsible is not understood. We will identify the molecular mechanisms by which vWF regulates factor **VIII** levels using vWF-'knock-out' and transgenic mice. Finally, factor **VIII** activity is regulated by proteolytic activation and inactivation. The inactivation of factor **VIII** in vitro results from dissociation of the **A2**-domain peptide. **Porcine** factor VIll has increased specific activity and reduced **A2**-domain dissociation compared to **human** factor **VIII**. We have engineered a novel **porcine/human** hybrid factor **VIII** that has increased in vitro procoagulant activity. We propose to evaluate the hemostatic efficacy of this molecule in a hemophiliac dog model. The proposed studies will provide important insight into mechanisms that regulate fact6r **VIII** expression and activity in vitro and in vivo and the information obtained will be essential in

manipulation, lack of potential contamination with **human** pathogens, conservation of eukaryotic cell machinery mediating **protein** modification, and low cost of biomass production. Tobacco has been used as our initial transgenic system because Agrobacterium-mediated transformation is highly efficient, prolific seed production greatly facilitates biomass scale-up, and development of new "health-positive" uses for tobacco has significant regional support. We have targeted bioproduction of complex **recombinant human proteins** with commercial potential as **human** pharmaceuticals. **Human protein** C (hPC), a highly processed serum protease of the coagulation/anticoagulation cascade, was produced at low levels in transgenic tobacco leaves. Analogous to its processing in mammalian systems, tobacco-synthesized hPC appears to undergo multiple proteolytic cleavages, disulfide bond formation, and N-linked glycosylation. Although tobacco-derived hPC has not yet been tested for all posttranslational modifications or for enzymatic (anticlotting) activity, these results are promising and suggest considerable conservation of **protein** processing machinery between **plants** and animals. CropTech researchers have also produced the **human** lysosomal enzyme glucocerebrosidase (hGC) in transgenic tobacco. This glycoprotein has significant commercial potential as replacement therapy in patients with Gaucher's disease. Regular intravenous administration of modified glucocerebrosidase, derived from **human** placentae or CHO cells, has proven highly effective in reducing disease manifestations in patients with Gaucher's disease. However, the enzyme is expensive (dubbed the "world's most expensive drug" by the media), making it a dramatic model for evaluating the potential of **plants** to provide a safe, low-cost source of bioactive **human** enzymes. Transgenic tobacco **plants** were generated that contained the **human** glucocerebrosidase cDNA under the control of an inducible **plant** promoter. hGC **expression** was demonstrated in **plant** extracts by enzyme activity assay and immunologic cross-reactivity with anti-hGC antibodies. Tobacco-synthesized hGC comigrates with **human** placental-derived hGC during electrophoretic separations, is glycosylated, and, most significantly, is enzymatically active. Although **expression** levels vary depending on transformant and induction protocol, hGC production of > 1 mg/g fresh weight of leaf tissue has been attained in crude extracts. Our studies provide strong support for the utilization of tobacco for high-level production of active hGC for purification and eventual therapeutic use at potentially much reduced costs. Furthermore, this technology should be directly adaptable to the production of a variety of other complex **human proteins** of biologic and pharmaceutical interest.

11/3,AB/3 (Item 3 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

08875607 96224289 PMID: 8643579
Three-dimensional structure of **human protein** kinase C interacting **protein** 1, a member of the HIT family of **proteins**.
Lima CD; Klein MG; Weinstein IB; Hendrickson WA
Department of Biochemistry and Molecular Biophysics, Columbia University, New York, NY 10032, USA.
Proceedings of the National Academy of Sciences of the United States of America (UNITED STATES) May 28 **1996**, 93 (11) p5357-62, ISSN 0027-8424 Journal Code: PV3
Contract/Grant No.: GM34102, GM, NIGMS
Languages: ENGLISH
Document type: Journal Article
Record type: Completed
The three-dimensional structure of **protein** kinase C interacting **protein** 1 (PKCI-1) has been solved to high resolution by x-ray crystallography using single isomorphous replacement with anomalous scattering. The gene encoding **human** PKCI-1 was cloned from a cDNA library by using a partial sequence obtained from interactions identified in the yeast two-hybrid system between PKCI-1 and the regulatory domain of

protein kinase C-beta. The PKCI-1 **protein** was **expressed** in Pichia pastoris as a dimer of two 13.7-kDa polypeptides. PKCI-1 is a member of the HIT family of **proteins**, shown by sequence identity to be conserved in a broad range of organisms including mycoplasma, **plants**, and **humans**. Despite the ubiquity of this **protein** sequence in nature, no distinct function has been shown for the **protein** product in vitro or in vivo. The PKCI-1 protomer has an alpha+beta meander fold containing a five-stranded antiparallel sheet and two helices. Two protomers come together to form a 10-stranded antiparallel sheet with extensive contacts between a helix and carboxy terminal amino acids of a protomer with the corresponding amino acids in the other protomer. PKCI-1 has been shown to interact specifically with zinc. The three-dimensional structure has been solved in the presence and absence of zinc and in two crystal forms. The structure of **human** PKCI-1 provides a model of this family of **proteins** which suggests a stable fold conserved throughout nature.

11/3,AB/4 (Item 4 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

06947564 90321530 PMID: 1366404
Production of correctly processed **human** serum albumin in transgenic **plants**.
Sijmons PC; Dekker BM; Schrammeijer B; Verwoerd TC; van den Elzen PJ; Hoekema A
Mogen International NV, Leiden, The Netherlands.
Bio/technology (UNITED STATES) Mar **1990**, 8 (3) p217-21, ISSN 0733-222X Journal Code: AL1
Languages: ENGLISH
Document type: Journal Article
Record type: Completed
We have used a modified CaMV 35S promoter to direct the **expression** of chimaeric genes encoding **human** serum albumin (HSA) in transgenic potato and tobacco **plants**. To secrete the **protein**, either the **human** prepro-sequence or the signal sequence from the extracellular tobacco **protein** PR-S was used. We demonstrate secretion of HSA with both types of signal sequences in transgenic leaf tissue and in suspension cultures. HSA produced in transgenic potato **plants** was purified to chromatographic homogeneity. N-terminal amino acid sequence analysis revealed that the processing of the precursor **protein** was dependent on the type of signal sequence. **Expression** of the **human** preproHSA gene lead to partial processing of the precursor and secretion of proHSA. Fusion of HSA to the **plant** PR-S presequence resulted in cleavage of the presequence at its natural site and secretion of correctly processed HSA that is indistinguishable from the authentic **human** **protein**.

11/3,AB/5 (Item 1 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
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11290022 BIOSIS NO.: 199800071354
Molecular cloning and functional **expression** of a **human** cDNA encoding translation initiation factor 6.
AUTHOR: Si Kausik(a); Chaudhuri Jayanta; Chevesich Jorge; Maitra Umadas
AUTHOR ADDRESS: (a)Dep. Developmental Molecular Biol., Albert Einstein Coll. Med. Yeshiva Univ., Jack and Pearl Res**USA
JOURNAL: Proceedings of the National Academy of Sciences of the United States of America 94 (26):p14285-14290 Dec. 23, **1997**
ISSN: 0027-8424
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Eukaryotic tra[redacted]ation initiation factor 6 (eIF[redacted]binds to the 60S ribosomal subunit and prevents its association with the 40S ribosomal subunit. In this paper, we devised a procedure for purifying eIF6 from rabbit reticulocyte lysates and immunochemically characterized the **protein** by using antibodies isolated from egg yolks of laying hens immunized with rabbit eIF6. By using these monospecific antibodies, a 1.096-kb **human** cDNA that encodes an eIF6 of 245 amino acids (calculated Mr 26,558) has been cloned and **expressed** in Escherichia coli. The purified **recombinant human protein** exhibits biochemical properties that are similar to eIF6 isolated from mammalian cell extracts. Database searches identified amino acid sequences from Saccharomyces cerevisiae, Drosophila, and the nematode Caenorhabditis elegans with significant identity to the deduced amino acid sequence of **human** eIF6, suggesting the presence of homologues of **human** eIF6 in these organisms.

1997

11/3,AB/6 (Item 2 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
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11084336 BIOSIS NO.: 199799705481
PP2C-gamma: A **human protein** phosphatase with a unique acidic domain.
AUTHOR: Travis Sue M(a); Welsh Michael J
AUTHOR ADDRESS: (a)Dep. Internal Med., 500 EMRB, Univ. Iowa Coll. Med., Iowa City, IA 52242**USA
JOURNAL: FEBS Letters 412 (3):p415-419 **1997**
ISSN: 0014-5793
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: We have cloned a novel cDNA from **human** skeletal muscle which encodes a **protein** phosphatase with a unique acidic domain. It is 34% identical to mammalian PP2C-alpha and PP2C-beta, and we call it PP2C-gamma. It more closely resembles PP2Cs from Paramecium tetraurelia and Schizosaccharomyces pombe than mammalian PP2Cs. Northern blot analysis shows that PP2C-gamma is widely **expressed**, and is most abundant in testis, skeletal muscle, and heart. Like known PP2Cs, **recombinant** PP2C-gamma requires Mg-2+ or Mn-2+ for activity. Unlike any other known phosphatase, PP2C-gamma has a highly acidic domain: 75% of the 54 residues are glutamate or aspartate.

1997

11/3,AB/7 (Item 3 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
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11069725 BIOSIS NO.: 199799690870
Molecular cloning and functional **expression** of a **human** cDNA encoding the antimutator enzyme 8-hydroxyguanine-DNA glycosylase.
AUTHOR: Roldan-Arjona Teresa; Wei Ying-Fei; Carter Kenneth C; Klungland Arne; Anselmino Catherine; Wang Rui-Ping; Augustus Meena; Lindahl Tomas (a)
AUTHOR ADDRESS: (a)Imperial Cancer Res. Fund, Clare Hall Lab., South Mimms, Hertfordshire EN6 3LD**UK
JOURNAL: Proceedings of the National Academy of Sciences of the United States of America 94 (15):p8016-8020 **1997**
ISSN: 0027-8424
RECORD TYPE: Abstract

LANGUAGE: English

ABSTRACT: The major mutagenic base lesion in DNA caused by exposure to reactive oxygen species is 8-hydroxyguanine (8-oxo-7,8-dihydroguanine). In bacteria and Saccharomyces cerevisiae, this damaged base is excised by a DNA glycosylase with an associated lyase activity for chain cleavage. We have cloned, sequenced, and **expressed** a **human** cDNA with partial sequence homology to the relevant yeast gene. The encoded 47-kDa **human** enzyme releases free 8-hydroxyguanine from oxidized DNA and introduces a chain break in a double-stranded oligonucleotide specifically at an 8-hydroxyguanine residue base paired with cytosine. **Expression** of the **human protein** in a DNA repair-deficient E. coli mutM mutY strain partly suppresses its spontaneous mutator phenotype. The gene encoding the **human** enzyme maps to chromosome 3p25. These results show that **human** cells have an enzyme that can initiate base excision repair at mutagenic DNA lesions caused by active oxygen.

1997

11/3,AB/8 (Item 4 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
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10987993 BIOSIS NO.: 199799609138
Wip1, a novel **human protein** phosphatase that is induced in response to ionizing radiation in a p53-dependent manner.
AUTHOR: Fiscella Michele; Zhang Hongliang; Fan Saijun; Sakaguchi Kazuyasu; Shen Songfa; Mercer W Edward; Vande Woude George F; O'Connor Patrick M; Appella Ettore(a)
AUTHOR ADDRESS: (a)Lab. Cell Biol., Div. Basic Sci., Natl. Cancer Inst., Natl. Inst. Health, 37 Convent Drive, MSC **USA
JOURNAL: Proceedings of the National Academy of Sciences of the United States of America 94 (12):p6048-6053 **1997**
ISSN: 0027-8424
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Exposure of mammalian cells to ionizing radiation (IR) induces a complex array of cellular responses including cell cycle arrest and/or apoptosis. IR-induced G-1 arrest has been shown to depend on the presence of the tumor suppressor p53, which acts as a transcriptional activator of several genes. p53 also plays a role in the induction of apoptosis in response to DNA damage, and this pathway can be activated by both transcription-dependent and -independent mechanisms. Here we report the identification of a novel transcript whose **expression** is induced in response to IR in a p53-dependent manner, and that shows homology to the type 2C **protein** phosphatases. We have named this novel gene, wip1. In vitro, **recombinant** Wip1 displayed characteristics of a type 2C phosphatase, including Mg-2+ dependence and relative insensitivity to okadaic acid. Studies performed in several cell lines revealed that wip1 accumulation following IR correlates with the presence of wild-type p53. The accumulation of wip1 mRNA following IR was rapid and transient, and the **protein** was localized to the nucleus. Similar to waf1, ectopic **expression** of wip1 in **human** cells suppressed colony formation. These results suggest that Wip1 might contribute to growth inhibitory pathways activated in response to DNA damage in a p53-dependent manner.

1997

11/3,AB/9 (Item 5 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

(c) 2001 BIOSIS. All rts. reserv.

10409352 BIOSIS NO.: 199699030497
Expression of **recombinant human protein** disulfide isomerase in the yeast Pichia pastoris.
AUTHOR: Hoffmann K; Onodera S; Noiva R
AUTHOR ADDRESS: Univ. S.D. Sch. Med., Vermillion, SD 57069**USA
JOURNAL: FASEB Journal 10 (6):pA1116 **1996**
CONFERENCE/MEETING: Joint Meeting of the American Society for Biochemistry and Molecular Biology, the American Society for Investigative Pathology and the American Association of Immunologists New Orleans, Louisiana, USA June 2-6, 1996
ISSN: 0892-6638
RECORD TYPE: Citation
LANGUAGE: English
1996

11/3,AB/10 (Item 6 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
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10235467 BIOSIS NO.: 199698690385
A receptor for the import of **proteins** into **human** mitochondria.
AUTHOR: Hanson Brendon; Nuttall Stewart; Hoogenraad Nicholas(a)
AUTHOR ADDRESS: (a)Sch. Biochem., La Trobe Univ., Bundoora, VIC 3083** Australia
JOURNAL: European Journal of Biochemistry 235 (3):p750-753 **1996**
ISSN: 0014-2956
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: We have characterised a 16.3-kDa **human protein** that functions as a receptor for the import of preproteins into mitochondria. Based on amino acid sequence alignments, the **protein** (hMas20p) is 41% similar to Mas20p (20-kDa mitochondrial assembly **protein**) from yeast Saccharomyces cerevisiae and 38% similar to MOM19 (19-kDa mitochondrial outer-membrane **protein**) from Neurospora crassa. hMas20p has a putative N-terminal transmembrane sequence of 29 amino acids and an acidic C-terminus. A 13-kDa fragment (des-(1-29)-hMas20p), which lacks the 29-amino-acid putative N-terminal transmembrane domain, is soluble when **expressed** in Escherichia coli. Antibodies produced against this domain crossreacted with a **protein** of 16 kDa in outer membranes of mitochondria from rat liver and inhibited import of **protein** into isolated mitochondria from rat liver. In addition, the **recombinant** soluble domain folds into a functional structure as it competes with hMas20p on the mitochondrial surface for precursor binding, confirming the functional role of hMas20p in the import of preproteins into mitochondria.

1996

11/3,AB/11 (Item 7 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
(c) 2001 BIOSIS. All rts. reserv.

08181439 BIOSIS NO.: 000094005212
HUMANIZATION OF IMMUNOTOXINS
AUTHOR: RYBAK S M; HOOGENBOOM H R; MEADE H M; RAUS J C M; SCHWARTZ D; YOULE R J
AUTHOR ADDRESS: BIOCHEMISTRY SECTION, SURGICAL NEUROLOGY BRANCH, NATIONAL INSTITUTE NEUROLOGICAL DISORDERS STROKE, NATIONAL INSTITUTES HEALTH, BETHESDA, MD. 20896.

JOURNAL: PROC NATL ACAD SCI U S A 89 (8). 1992. 3165-3169. **1992**
FULL JOURNAL NAME: Proceedings of the National Academy of Sciences of the United States of America
CODEN: PNASA
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: The construction and **expression** of a chimeric gene encoding a mouse/**human** antibody to the **human** transferrin receptor fused to the gene for angiogenin, a **human** homolog of pancreatic RNase, are described. F(ab')2-like antibody-enzyme fusions were prepared by linking the gene for **human** angiogenin to a chimeric anti-transferrin receptor heavy chain gene. The antibody-enzyme fusion gene was introduced into a transfectoma that secretes the chimeric light chain of the same antibody, and cell lines were cloned that synthesize and secrete the antibody-enzyme fusion **protein** of the expected size at a concentration of 1-5 ng/ml. Culture supernatants from clones secreting the fusion **protein** caused inhibition of growth and **protein** synthesis of K562 cells that **express** the **human** transferrin receptor but not toward a non-**human**-derived cell line that lacks this receptor. Whereas excess antibody to the same receptor did not itself inhibit **protein** synthesis, it was able to completely prevent the **protein** synthesis inhibition caused by the fusion **protein**. These results indicate that the cytotoxicity is due to a transferrin receptor-mediated mechanism involving the angiogenin portion of the fusion **protein** and demonstrate the feasibility of constructing **recombinant** antibody-RNase molecules capable of killing tumor cells bearing the transferrin receptor. The significance of the acquired cytotoxicity of a mouse/**human** chimeric antibody linked to a **human protein** may bear importantly in **human** therapeutic strategies that use mouse antibody linked to toxins from **plants** or bacteria to target tumor cells. It is expected that the **humanization** of immunotoxins will lead to less toxicity and immunogenicity than currently available reagents.

1992

11/3,AB/12 (Item 8 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
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07500626 BIOSIS NO.: 000091074495
ENDOPROTEOLYTIC PROCESSING OF THE **HUMAN PROTEIN** C PRECURSOR BY THE YEAST KEX2 ENDOPEPTIDASE COEXPRESSED IN MAMMALIAN CELLS
AUTHOR: FOSTER D C; HOLLY R D; SPRECHER C A; WALKER K M; KUMAR A A
AUTHOR ADDRESS: ZYMOGENETICS INC., 4225 ROOSEVELT WAY N.E., SEATTLE, WASH. 98105.
JOURNAL: BIOCHEMISTRY 30 (2). 1991. 367-372. **1991**
FULL JOURNAL NAME: Biochemistry
CODEN: BICHA
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: The **human protein** C precursor undergoes extensive co- and posttranslational modification during its biosynthesis in the liver. These modifications include glycosylation, .gamma.-carboxylation, and .beta.-hydroxylation of specific amino acids and endoproteolytic processing to remove the pre- and propeptides as well as the pair of basic amino acids which connect the light and heavy chains in the precursor. Previous studies with a **recombinant** mammalian **expression** system have indicated that the endopeptidase in several mammalian cell types which recognizes and cleaves this dibasic site has a substrate specificity for sites which also include a basic amino acid in the -4 position (Foster et al., 1990). Since the **human**

protein C precursor has His154 in the -4 position, it is poorly and incompletely cleaved in HK and several other mammalian cell lines and also apparently secreted from the liver as a mixed population of mature two-chain and precursor one-chain molecules. In the present study, a mammalian **expression** system has been used to study the effect of coexpressing the **protein** C precursor together with the yeast Kex2 endopeptidase which is known to recognize and process dibasic pairs within peptide precursors in yeast. Coexpression of the KEX2 gene resulted in complete conversion of the **protein** C precursor to the mature two-chain form. Amino-terminal sequencing of the cleavage products has indicated that the cleavage occurs in the correct location and that this site is preferentially recognized by the yeast endopeptidase within the context of the mammalian cell secretory pathway.

1991

11/3,AB/13 (Item 9 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
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07282548 BIOSIS NO.: 000090062435
FUNCTIONAL DOMAINS AND UPSTREAM ACTIVATION PROPERTIES OF CLONED **HUMAN** TATA BINDING **PROTEIN**
AUTHOR: PETERSON M P; TANESE N; PUGH B F; TJIAN R
AUTHOR ADDRESS: HOWARD HUGHES INST., DEP. MOL. CELL BIOL., UNIV. CALIFORNIA BERKELEY, BERKELEY, BERKELEY, CALIF. 94720.
JOURNAL: SCIENCE (WASHINGTON D C) 248 (4963). 1990. 1625-1630. **1990**
FULL JOURNAL NAME: SCIENCE (Washington D C)
CODEN: SCIEA
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: The TATA binding **protein**, TFIID, plays a central role in the initiation of eukaryotic mRNA synthesis. Here, we present a **human** cDNA clone for this factor. Comparison of its predicted **protein** sequence with those from Drosophila and yeast reveals a highly conserved carboxyl-terminal 180 amino acids. By contrast, the amino-terminal region of TFIID has diverged in both sequence and length. A striking feature of the **human protein** is a stretch of 38 glutamine residues in the NH2-terminal region. **Expression** of **human** TFIID in both Escherichia coli and HeLa cells produces a **protein** that binds specifically to a TATA box and promotes basal transcription; the conserved COOH-terminal portion of the **protein** is sufficient for both of these activities. **Recombinant** TFIID forms a stable complex on a TATA box either alone or in combination with either of the general transcription factors, TFIIA or TFIIB. Full-length **recombinant** TFIID is able to support Sp1 activated transcription in a TFIID-depleted nuclear extract, while a deletion of the NH2-terminal half of the **protein** is not. These results indicate the importance of the NH2-terminal region for upstream activation functions and suggest that additional factors (co-activators) are required for mediating interactions with specific regulators.

1990

11/3,AB/14 (Item 10 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
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06991239 BIOSIS NO.: 000089092503
EXPRESSION PURIFICATION AND CHARACTERIZATION OF **HUMAN** FACTOR XIII IN SACCHAROMYCES-CEREVISIAE
AUTHOR: BISHOP P D; TELLER D C; SMITH R A; LASSER G W; GILBERT T; SEALE R L

AUTHOR ADDRESS: ZYMOGENETICS INC., 4225 ROOSEVELT WAY, N.E., SEATTLE, WASHINGTON 98105.
JOURNAL: BIOCHEMISTRY 29 (7). 1990. 1861-1869. **1990**
FULL JOURNAL NAME: Biochemistry
CODEN: BICHA
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: Factor XIII is the terminal enzyme of the clotting cascade. A cDNA sequence encoding **human** placental factor XIII was **expressed** in Saccharomyces cerevisiae with the yeast ADH2-4c promoter. **Expression** levels were a strong function of the noncoding flanking DNA content of the construction. When the terminal 3'-flanking noncoding DNA was removed, **expression** increased approximately 50-fold. The **protein** was produced in quantity by high-yield fermentation and purified to homogeneity. The **recombinant protein** was cleaved by thrombin at the same activation site as purified **human** placental FXIII and exhibited 100% enzymatic activity. At high thrombin concentrations rFXIIIa was cleaved into inactive 54- and 25-kDa polypeptides. The identity of these cleavage sites and the blocked N-terminus to that of the **human protein** was revealed by amino acid microsequencing. A time course of thrombin activation was performed and the relative distribution of the thrombin-cleaved subunits to the uncleaved zymogen subunits determined; the results were consistent with the half of the sites catalytic model for transglutaminase activity proposed by Chung et al. (Chung, S. I., Lewis, M. S., & Folk, J. E. (1974) J. Biol. Chem. 249, 940-950, 1974) and Hornyak et al. (Hornyak, T. J., Bishop, P. D., & Shafer, J. A. (1989) Biochemistry 28, 7326-7332). Equilibrium and velocity sedimentation analysis indicated that rFXIII exists as a 166-kDa nondissociating dimer that behaves as a compact particle of 8.02 S. Thus, all of the properties of rFXIII thus far examined are consistent with those reported for **human** platelet and placental FXIII. The availability of the **recombinant human proteins** for therapeutic purposes provides a low-risk alternative to material purified from **human** sources.

1990

11/3,AB/15 (Item 11 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
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02407176 BIOSIS NO.: 000065064219
GENETIC ENGINEERING FORMATION OF **RECOMBINANT** DNA IN-VITRO
AUTHOR: THOMAS R
JOURNAL: BULL CL SCI ACAD R BELG 5E SER 63 (3). 1977 (RECD 1978) 248-252.
1977
FULL JOURNAL NAME: Bulletin de la Classe des Sciences Academie Royale de Belgique 5E Serie
CODEN: BCSAA
RECORD TYPE: Abstract
LANGUAGE: FRENCH

ABSTRACT: A general review of the status of genetic engineering is presented. Discussion includes recombination as a natural phenomenon, its mechanisms, the effect of the Mu bacteriophage in vivo and recent methods of in vitro recombination among dissimilar species. The role of ligase, recombination experiments involving genes from Xenopus and mammalian globin and recombination between bacterial plasmids and superior organisms are discussed. Possible problems of **expression** of foreign DNA in hybridized cells and hazards associated with such work are mentioned. Applications of genetic engineering, such as synthesis of **human proteins** of therapeutic interest, synthesis of vaccines

and the creation of bacteria-free N2-fixing **plants** are discussed. Regulation of safety standards by national and international agencies is also discussed.

1977

11/3,AB/16 (Item 1 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 2001 Inst for Sci Info. All rts. reserv.

05420981 Genuine Article#: VX339 Number of References: 46
Title: MAPPING OF THE ENTOMOCIDAL FRAGMENT OF SPODOPTERA-SPECIFIC BACILLUS-THURINGIENSIS TOXIN CRYIC (Abstract Available)
Author(s): STRIZHOV N; KELLER M; KONEZKALMAN Z; REGEV A; SNEH B; SCHELL J; KONCZ C; ZILBERSTEIN A
Corporate Source: MAX PLANCK INST ZUCHTUNGSFORSCH,CARL VON LINNE WEG 10/D-50829 COLOGNE//GERMANY/; TEL AVIV UNIV,GEORGE S WISE FAC LIFE SCI,DEPT BOT/IL-69978 RAMAT AVIV//ISRAEL/
Journal: MOLECULAR & GENERAL GENETICS, **1996**, V253, N1-2 (NOV 27), P 11-19
ISSN: 0026-8925
Language: ENGLISH Document Type: ARTICLE
Abstract: Insecticidal CryI protoxins of Bacillus thuringiensis are activated by proteolysis in the midgut of insects. A conservation of proteolytic cleavage sites in the CryI **proteins** facilitates the **expression** of active toxins in transgenic **plants** to obtain protection from various insects. However, the engineering of CryIC toxins has, thus far, failed to yield applicable resistance to armyworms of Spodoptera species representing common insect pests worldwide. To improve the production of **recombinant** CryIC toxins, we established a CryIC consensus sequence by comparative analysis of three cryIC genes and tested the stability and protease sensitivity of truncated CryIC toxins in Escherichia coli and in vitro. In contrast to previous data, the boundaries of trypsin-resistant CryIC core toxin were mapped to amino acid residues 128 and R627. Proteolysis of the truncated CryIC **proteins** showed that Spodoptera midgut proteases may further shorten the C-terminus of CryIC toxin to residue A615. However, C-terminal truncation of CryIC to residue L614, and a mutation causing amino acid replacement I610T, abolished the insecticidal activity of CryIC toxin to S. littoralis larvae, as well as its resistance to trypsin and Spodoptera midgut proteases. Because no CryIC toxin carrying a proteolytically processed N-terminus could be stably **expressed** in bacteria, our data indicate that, in contrast to other CryI poteins, an entomocidal fragment located between amino acid positions 1 and 627 is required for stable production of **recombinant** CryIC toxins.

11/3,AB/17 (Item 2 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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05404511 Genuine Article#: VW528 Number of References: 50
Title: MOLECULAR ANALYSIS OF RNA-POLYMERASE ALPHA-SUBUNIT GENE FROM STREPTOMYCES-COELICOLOR A3(2) (Abstract Available)
Author(s): CHO EJ; BAE JB; KANG JG; ROE JH
Corporate Source: HARVARD UNIV,SCH MED,DEPT BIOL CHEM & MOL PHARMACOL/BOSTON//MA/02115; SEOUL NATL UNIV,COLL NAT SCI,DEPT MICROBIOL/SEOUL 151742//SOUTH KOREA/; SEOUL NATL UNIV,COLL NAT SCI,RES CTR MOL MICROBIOL/SEOUL 151742//SOUTH KOREA/
Journal: NUCLEIC ACIDS RESEARCH, **1996**, V24, N22 (NOV 15), P4565-4571
ISSN: 0305-1048
Language: ENGLISH Document Type: ARTICLE
Abstract: The rpoA gene, encoding the alpha subunit of RNA polymerase, was

cloned from Streptomyces coelicolor A3(2). It is preceded by rpsK and followed by rplQ, encoding ribosomal **proteins** S11 and [redacted]7, respectively, similar to the gene order in Bacillus subtilis, The rpoA gene specifies a **protein** of 339 amino acids with deduced molecular mass of 36 510 Da, exhibiting 64.3 and 70.7% similarity over its entire length to Escherichia coil and B. subtilis alpha subunits, respectively. Using T7 **expression** system, we overexpressed the S. coelicolor alpha **protein** in E. coli. A small fraction of this **protein** was found to be assembled into E. coli RNA polymerase, Antibody against S. coelicolor a **protein** crossreacted with that of B. subtilis move than with the E. coli alpha subunit, The ability of **recombinant** a **protein** to assemble beta and beta' subunits into core enzyme in vitro was examined by measuring the core enzyme activity, Maximal reconstitution was obtained at alpha(2):beta+beta' ratio of 1:2.3, indicating that the **recombinant** ex **protein** is fully functional for subunit assembly, Similar results were also obtained for natural alpha **protein**, Limited proteolysis with endoproteinase Glu-C revealed that S. coelicolor alpha contains a tightly folded N-terminal domain and the C-terminal region is more protease-sensitive than that of E. coli alpha.

11/3,AB/18 (Item 3 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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05364619 Genuine Article#: VT975 Number of References: 51
Title: MOLECULAR CHARACTERIZATION OF POTATO FUMARATE HYDRATASE AND FUNCTIONAL **EXPRESSION** IN ESCHERICHIA-COLI (Abstract Available)
Author(s): NAST G; MULLERROBER B
Corporate Source: MAX PLANCK INST MOL PFLANZENPHYSIOL,MPI,MOPP,KARL LIEBKNECHT STR 25,HAUS 20/D-14476 GOLM POTSDAM//GERMANY/; INST GENBIOL FORSCH BERLIN GMBH/D-14195 BERLIN//GERMANY/
Journal: PLANT PHYSIOLOGY, **1996**, V112, N3 (NOV), P1219-1227
ISSN: 0032-0889
Language: ENGLISH Document Type: ARTICLE
Abstract: The tricarboxylic acid cycle enzyme fumarase (fumarate hydratase; EC 4.2.1.2) catalyzes the reversible hydration of fumarate to L-malate. We report the molecular cloning of a cDNA (StFum-1) that encodes fumarase from potato (Solanum tuberosum L.). RNA blot analysis demonstrated that StFum-1 is most strongly **expressed** in flowers, immature leaves, and tubers. The deduced **protein** contains a typical mitochondrial targeting peptide and has a calculated molecular mass of 50.1 kD (processed form). Potato fumarase complemented a fumarase-deficient Escherichia coli mutation for growth on minimal medium that contains acetate or fumarate as the sole carbon source, indicating that functional **plant protein** was produced in the bacterium. Antiserum raised against the **recombinant** **plant** enzyme recognized a 50-kD **protein** in wild-type but not in StFum-1 antisense **plants**, indicating specificity of the immunoreaction. A **protein** of identical size was also detected in isolated potato tuber mitochondria. Although elevated activity of fumarase was previously reported for guard cells (as compared with mesophyll cells), additional screening and genomic hybridization data reported here do not support the hypothesis that a second fumarase gene is **expressed** in potato guard cells.

11/3,AB/19 (Item 4 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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05343470 Genuine Article#: VT052 Number of References: 55
Title: PINORESINOL/(+)-LARICIRESINOL REDUCTASE FROM FORSYTHIA-INTERMEDIA - **PROTEIN**-PURIFICATION, CDNA CLONING, HETEROLOGOUS **EXPRESSION**

AND COMPARISON TO ISOFLAVONE REDUCTASE (Abstract Available)
Author(s): DINKOVAKOSTO[redacted]AT; GANG DR; DAVIN LB; BEDGAR [redacted] CHU A; LEWIS NG
Corporate Source: WASHINGTON STATE UNIV,INST BIOL CHEM/PULLMAN//WA/99164;
WASHINGTON STATE UNIV,INST BIOL CHEM/PULLMAN//WA/99164
Journal: JOURNAL OF BIOLOGICAL CHEMISTRY, **1996**, V271, N46 (NOV 15), P 29473-29482
ISSN: 0021-9258
Language: ENGLISH Document Type: ARTICLE
Abstract: Lignans are a widely distributed class of natural products, whose functions and distribution suggest that they are one of the earliest forms of defense to have evolved in vascular **plants**; some, such as podophyllotoxin and enterodiol, have important roles in cancer chemotherapy and prevention, respectively.

Entry into lignan enzymology has been gained by the similar to 3000-fold purification of two isoforms of (+)-pinoresinol/(+)-lariciresinol reductase, a pivotal branchpoint enzyme in lignan biosynthesis. Both have comparable (similar to 34.9 kDa) molecular mass and kinetic (V-max/K-m) properties and catalyze sequential, NADPH-dependent, stereospecific, hydride transfers where the incoming hydride takes up the pro-R position.

The gene encoding (+)-pinoresinol/(+)-lariciresinol reductase has been cloned and the **recombinant protein** heterologously **expressed** as a functional beta-galactosidase fusion **protein**. Its amino acid sequence reveals a strong homology to isoflavone reductase, a key branchpoint enzyme in isoflavonoid metabolism and primarily found in the Fabaceae (angiosperms). This is of great evolutionary significance since both lignans and isoflavonoids have comparable **plant** defense properties, as well as similar roles as phytoestrogens. Given that lignans are widespread from primitive **plants** onwards, whereas the isoflavone reductase-derived isoflavonoids are mainly restricted to the Fabaceae, it is tempting to speculate that this branch of the isoflavonoid pathway arose via evolutionary divergence from that giving the lignans.

11/3,AB/20 (Item 5 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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05343127 Genuine Article#: VR398 Number of References: 17
Title: CLONING AND SEQUENCING OF A DEVELOPMENTALLY-REGULATED AVIAN MESSENGER-RNA CONTAINING THE LEA MOTIF FOUND IN **PLANT** SEED **PROTEINS** (Abstract Available)
Author(s): NIU S; ANTIN PB; MORKIN E
Corporate Source: UNIV ARIZONA,UNIV HEART CTR,6301 AHSC,1501 N CAMPBELL/TUCSON//AZ/85724; UNIV ARIZONA,UNIV HEART CTR/TUCSON//AZ/85724 ; UNIV ARIZONA,DEPT INTERNAL MED/TUCSON//AZ/85724; UNIV ARIZONA,DEPT PHYSIOL/TUCSON//AZ/85724; UNIV ARIZONA,DEPT PHARMACOL/TUCSON//AZ/85724
Journal: GENE, **1996**, V175, N1-2 (OCT 10), P187-191
ISSN: 0378-1119
Language: ENGLISH Document Type: ARTICLE
Abstract: We report the cloning of a bromodeoxyuridine (BrdU)-sensitive transcript of 918 bp from an immortalized quail heart cell line containing an open reading frame (ORF) of 215 amino acids (aa) (approximate to 23 kDa). Analysis of the secondary structure predicts two amphipathic alpha-helices with oppositely oriented amphipathic surfaces at the C-terminus of the **protein**. Each of the helices contains an LEA (late embryogenesis abundant) consensus sequence (A/TAEKAK/RETKD) which has been previously described only in a group of **plant** seed-specific **proteins**. Temporal and spatial distribution patterns of the transcript during chick embryo development were examined by whole-mount in situ hybridization and Northern blot analysis. At H&H (Hamburger and Hamilton, 1951) stages 11-14, the

message was **expressed** strongly in blood islands in the area opaca. At day 5, str[redacted] signals were found in the liv[redacted] primordia, mesonephrons, and nephric duet. Frozen sections of whole mount-stained embryonic liver demonstrated that the message was restricted to developing blood cells. The **expression** pattern of this transcript suggests that its **protein** product may be involved in hematopoiesis during avian development.

11/3,AB/21 (Item 6 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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05315808 Genuine Article#: VP542 Number of References: 19
Title: CLONING OF A CDNA-ENCODING A DEVELOPMENTALLY-REGULATED 22 KDA POLYPEPTIDE FROM TOBACCO LEAF PLASMA-MEMBRANE (Abstract Available)
Author(s): GANTET P; MASSON F; DOMERGUE O; MARQUISMENTION M; BAUW G; INZE D ; ROSSIGNOL M; DELASERVE BT
Corporate Source: INRA,ENSA M,CNRS URA 573,LAB BIOCHIM & PHYSIOL VEGETALES,PL VIALA/F-34060 MONTPELLIER 1//FRANCE/; INRA,ENSA M,CNRS URA 573,LAB BIOCHIM & PHYSIOL VEGETALES/F-34060 MONTPELLIER 1//FRANCE/; RIJKSUNIV,GENET LAB/B-9000 GHENT//BELGIUM/
Journal: BIOCHEMISTRY AND MOLECULAR BIOLOGY INTERNATIONAL, **1996**, V40 , N3 (OCT), P469-477
ISSN: 1039-9712
Language: ENGLISH Document Type: ARTICLE
Abstract: A polypeptide doublet (P18-P19, ca 22 kDa, pI 4.5) has been shown to accumulate in tobacco leaf plasma membrane in a development-dependent way, under constant environmental conditions. P18 and P19 were purified by 2D-PAGE and microsequenced. Microsequences revealed only small differences between the two polypeptides. A PCR-based cloning strategy identified a cDNA displaying a 591 bp ORF. The encoded polypeptide contained P19 specific microsequences. It was **expressed** in E. coli and a specific rabbit antiserum was raised. Western-blots confirmed its identification as P19. The accumulation pattern of hybridizable mRNA around the floral induction period was similar to that of P18 and P19. Searching of databases revealed no significant hits except unidentified **plant** ESTs. P18 and P19 are proposed as the first example of **plant**-specific and developmentally regulated plasma membrane **proteins**.

11/3,AB/22 (Item 7 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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05254160 Genuine Article#: VL335 Number of References: 50
Title: THE HYDROGENASE GENE-CLUSTER OF RHIZOBIUM-LEGUMINOSARUM BV. VICIAE CONTAINS AN ADDITIONAL GENE (HYPX), WHICH ENCODES A **PROTEIN** WITH SEQUENCE SIMILARITY TO THE N-10-FORMYLTETRAHYDRAFOLATE-DEPENDENT ENZYME FAMILY AND IS REQUIRED FOR NICKEL-DEPENDENT HYDROGENASE PROCESSING AND ACTIVITY (Abstract Available)
Author(s): REY L; FERNANDEZ D; BRITO B; HERNANDO Y; PALACIOS JM; IMPERIAL J ; RUIZARGUESO T
Corporate Source: UNIV POLITECN MADRID,ESCUELA TECN SUPER INGN AGRON,MICROBIOL LAB/E-28040 MADRID//SPAIN/; UNIV POLITECN MADRID,ESCUELA TECN SUPER INGN AGRON,MICROBIOL LAB/E-28040 MADRID//SPAIN/; CSIC/E-28040 MADRID//SPAIN/
Journal: MOLECULAR & GENERAL GENETICS, **1996**, V252, N3 (SEP 13), P 237-248
ISSN: 0026-8925
Language: ENGLISH Document Type: ARTICLE
Abstract: Plasmid pAL618 contains the genetic determinants for Hz uptake (hup) from Rhizobium leguminosarum by. viciae, including a cluster of 17 genes named hupSLCDEFGHIJK-hypABFCDE. A 1.7-kb segment of insert DNA

located downstream of hypE has now been sequenced, thus completing the sequence of the 204[redacted]bp insert DNA in plasmid pAL61[redacted]An open reading frame (designated hypX) encoding a **protein** with a calculated M(r) of 62 300 that exhibits extensive sequence similarity with HoxX from Alcaligenes eutrophus (52% identity) and Bradyrhizobium japonicum (57% identity) was identified 10 bp downstream of hypE. Nodule bacteroids produced by hypX mutants in pea (Pisum sativum L.) **plants** grown at optimal nickel concentrations (100 mu M) for hydrogenase **expression**, exhibited less than 5% of the wild-type levels of hydrogenase activity. These bacteroids contained wild-type levels of mRNA from hydrogenase structural genes (hupSL) but accumulated large amounts of the immature form of HupL **protein**. The Hup-deficient mutants were complemented for normal hydrogenase activity and nickel-dependent maturation of HupL by a hypX gene provided in trans. From **expression** analysis of hypX-lacZ fusion genes, it appears that hypX gene is transcribed from the FnrN-dependent hyp promoter, thus placing hypX in the hyp operon (hypBFCDEX). Comparisons of the HypX/HoxX sequences with those in databases provided unexpected insights into their function in hydrogenase synthesis. Similarities were restricted to two distinct regions in the HypX/HoxX sequences. Region I, corresponding to a sequence conserved in N-10-formyltetrahydrofolate-dependent enzymes involved in transferring one-carbon units (C-1), was located in the N-terminal half of the **protein**, whereas region II, corresponding to a sequence conserved in enzymes of the enoyl-CoA hydratase/isomerase family, was located in the C-terminal half, These similarities strongly suggest that HypX/HoxX have dual functions: binding of the C-1 donor N-10-formyltetrahydrofolate and transfer of the C-1 to an unknown substrate, and catalysis of a reaction involving polarization of the C=O bond of an X-CO-SCoA substrate. These results also suggest the involvement of a small organic molecule, possibly synthesized with the participation of an X-CO-SCoA precursor and of formyl groups, in the synthesis of the metal-containing active centre of hydrogenase.

11/3,AB/23 (Item 8 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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05040221 Genuine Article#: TL363 Number of References: 69
Title: SEQUENCE AND **EXPRESSION** ANALYSIS OF THE HRPB PATHOGENICITY OPERON OF XANTHOMONAS-CAMPESTRIS PV VESICATORIA WHICH ENCODES 8 **PROTEINS** WITH SIMILARITY TO COMPONENTS OF THE HRP, YSC, SPA, AND FLI SECRETION SYSTEMS (Abstract Available)
Author(s): FENSELAU S; BONAS U
Corporate Source: INST GENBIOL FORSCH BERLIN GMBH,IHNESTR 63/D-14195 BERLIN//GERMANY/; INST GENBIOL FORSCH BERLIN GMBH/D-14195 BERLIN//GERMANY/; CNRS,INST SCI VEGETALES/F-91198 GIF SUR YVETTE//FRANCE/
Journal: MOLECULAR PLANT-MICROBE INTERACTIONS, **1995**, V8, N6 (NOV-DEC) , P845-854
ISSN: 0894-0282
Language: ENGLISH Document Type: ARTICLE
Abstract: In this paper we describe the molecular characterization of hrpB, the largest operon in the Xanthomonas campestris pv. vesicatoria hrp cluster. The hrpB region encompasses 6 kb and encodes eight putative **proteins**, seven of which were **expressed** in Escherichia coli. The HrpB3 **protein** is the only one carrying a signal peptide sequence at the N-terminus and is a putative lipoprotein localized in the outer membrane of X. campestris pv. vesicatoria. The HrpB4 and HrpB8 **proteins** contain one and five putative transmembrane domains, respectively, and are most likely associated with the inner membrane. The HrpB3, HrpB5, HrpB6, and HrpB8 **proteins** show sequence similarity to putative components of different type III **protein** secretion pathways in bacteria. Examples include Hrp

proteins from other **plant** pathogens, YscJ, YscN, YscL, and YscT of Yersinia spp. and MxiJ, Spa47, and Spa29 of Shigella flexneri. The transcription start site and the hrpB promoter were identified. The minimal hrpB promoter region of 90 bp contains a novel sequence motif, the PIP-box, which might play a role in transcription activation of the hrpB operon and possibly other **plant**-induced genes of X. campestris pv. vesicatoria.

11/3,AB/24 (Item 9 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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05019951 Genuine Article#: UZ876 Number of References: 26
Title: A NOVEL AMIDOHYDROLASE GENE FROM BACILLUS-SUBTILIS CLONING - DNA-SEQUENCE ANALYSIS AND MAP POSITION OF AMHX (Abstract Available)
Author(s): KEMPF B; BREMER E
Corporate Source: MAX PLANCK INST TERR MIKROBIOL,KARL VON FRISCH STR/D-35032 MARBURG//GERMANY/; MAX PLANCK INST TERR MIKROBIOL/D-35032 MARBURG//GERMANY/; UNIV MARBURG,FACHBEREICH BIOL,MIKROBIOL LAB/D-35032 MARBURG//GERMANY/
Journal: FEMS MICROBIOLOGY LETTERS, **1996**, V141, N2-3 (AUG 1), P 129-137
ISSN: 0378-1097
Language: ENGLISH Document Type: ARTICLE
Abstract: The nucleotide sequence of a new Bacillus subtilis gene (amhX) was determined that encodes a **protein** (AmhX) with strong sequence identity to amidohydrolases from both **plant** and bacterial species and a carboxypeptidase from the archaeon Sulfolobus sulfataricus. The amhX gene encodes a hydrophilic polypeptide of 383 amino acids with a molecular mass of 41.5 kDa. The amhX gene was overexpressed in E. coli by using the T7 RNA polymerase/promoter system and the transcription initiation sites for the amhX mRNAs in B. subtilis were determined by primer extension analysis. Chromosomal amhX mutations were constructed by marker replacement and the amhX gene was positioned at 25 degrees on the genetic and physical map of the B. subtilis chromosome.

11/3,AB/25 (Item 10 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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04826325 Genuine Article#: UK843 Number of References: 28
Title: A CHERRY **PROTEIN** AND ITS GENE, ABUNDANTLY **EXPRESSED** IN RIPENING FRUIT, HAVE BEEN IDENTIFIED AS THAUMATIN-LIKE (Abstract Available)
Author(s): FILSLYCAON BR; WIERSMA PA; EASTWELL KC; SAUTIERE P
Corporate Source: AGR & AGRI FOOD CANADA,SUMMERLAND RES CTR/SUMMERLAND/BC V0H 1Z0/CANADA/; AGR & AGRI FOOD CANADA,SUMMERLAND RES CTR/SUMMERLAND/BC V0H 1Z0/CANADA/; INRA/F-84914 AVIGNON 9//FRANCE/; INST PASTEUR,URA 1309 CNRS/F-59019 LILLE//FRANCE/
Journal: PLANT PHYSIOLOGY, **1996**, V111, N1 (MAY), P269-273
ISSN: 0032-0889
Language: ENGLISH Document Type: ARTICLE
Abstract: A 29-kD polypeptide is the most abundant soluble **protein** in ripe cherry fruit (Prunus avium L); accumulation begins at the onset of ripening as the fruit turns from yellow to red. This **protein** was extracted from ripe cherries and purified by size-exclusion and ion-exchange chromatography. Antibodies to the purified **protein** were used to screen a cDNA library from ripe cherries. Numerous **recombinant** plaques reacted positively with the antibodies; the DNA sequence of representative clones encoded a polypeptide of 245 amino acid residues. A signal peptide was indicated, and the predicted mature **protein** corresponded to the purified **protein** in size (23.3 kD, by mass spectrometry) and isoelectric point (4.2). A search

of known **protein** sequences revealed a strong similarity between this polypeptide and the thaumatin family of pathogenesis-related **proteins**. The cherry thaumatin-like **protein** does not have a sweet taste, and no antifungal activity was seen in preliminary assays. **Expression** of the **protein** appears to be regulated at the gene level, with mRNA levels at their highest in the ripe fruit.

11/3,AB/26 (Item 11 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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04823641 Genuine Article#: UL057 Number of References: 69
Title: CHARACTERIZATION OF AN ARABIDOPSIS-THALIANA GENE THAT DEFINES A NEW CLASS OF PUTATIVE **PLANT** RECEPTOR KINASES WITH AN EXTRACELLULAR LECTIN-LIKE DOMAIN (Abstract Available)
Author(s): HERVE C; DABOS P; GALAUD JP; ROUGE P; LESCURE B
Corporate Source: INRA,CNRS,LAB BIOL MOLEC & RELAT PLANTES MICROORGANISMES/F-31326 CASTANET TOLOSAN//FRANCE/; INRA,CNRS,LAB BIOL MOLEC & RELAT PLANTES MICROORGANISMES/F-31326 CASTANET TOLOSAN//FRANCE/ ; UNIV TOULOUSE 3,CTR BIOL & PHYSIOL VEGETALE,URACNRS 1941/F-31062 TOULOUSE//FRANCE/
Journal: JOURNAL OF MOLECULAR BIOLOGY, **1996**, V258, N5 (MAY 24), P 778-788
ISSN: 0022-2836
Language: ENGLISH Document Type: ARTICLE
Abstract: We have characterized an Arabidopsis receptor-like serine/threonine kinase gene, Ath.lecRK1 (Arabidopsis thaliana lectin-receptor kinase), defining a new and putatively important class of **plant** receptor kinases. Structural features of the predicted polypeptide include an amino-terminal membrane-targeting signal sequence, a legume lectin-like extracellular domain, a single membrane-spanning domain, and a characteristic serine/threonine **protein** kinase domain. A **recombinant protein** containing the kinase domain can be autophosphorylated on a serine residue. Ath.lecRK1 is a member of a gene family of at least two closely related genes. Northern blot analysis indicates that the Ath.lecRK1 gene is weakly **expressed** in a variety of organs and is regulated in Arabidopsis cell suspension cultures according to the growth phase of cells. The role this new class of **plant** receptor kinase could play is discussed with regard to the transduction of oligosaccharide and **plant** hormone signals. (C) 1996 Academic Press Limited

11/3,AB/27 (Item 12 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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04697226 Genuine Article#: UB450 Number of References: 63
Title: SEASONAL-VARIATION OF WESTERN WHITE-PINE (PINUS MONTICOLA DON,D.) FOLIAGE **PROTEINS** (Abstract Available)
Author(s): EKRAMODDOULLAH AKM; TAYLOR DW
Corporate Source: CANADIAN FOREST SERV,PACIFIC FORESTRY CTR,506 WBURNSIDE RD/VICTORIA/BC/CANADA/
Journal: PLANT AND CELL PHYSIOLOGY, **1996**, V37, N2 (MAR), P189-199
ISSN: 0032-0781
Language: ENGLISH Document Type: ARTICLE
Abstract: Recently, a western white pine **protein**, Pin m III, was shown to be associated with overwintering and frost hardiness of western white pine foliage. To examine whether Pin m III is directly involved in frost hardiness by functioning as an antifreeze **protein**, work is underway to clone the gene encoding this **protein** and to assess the function of this gene in freezing tolerance by incorporating the gene in a test **plant**, such as

tobacco. Here, we examined in more detail, by SDS-PAGE and also by two dimensional gel electrophoresis, the seasonal variation of additional **proteins** in western pine foliage. SDS-PAGE analysis of three seedlots showed that different **proteins** reached a maximum level in different months, although most **proteins** (5 to 11) reached a maximum level in winter months (December, January and February), The 2-D gel analysis of foliage sampled on three harvest dates (October, January and April) of one seedlot revealed a seasonal variation of a large number **proteins** (76 to 184). Of the seasonally varied **proteins**, the amino terminal sequence of several **proteins** including Pin m III was determined. One of the sequences was identified by homology to that of the small subunit of ribulose biphosphate carboxylase, whose level increased substantially from fall to spring. The amino terminal sequence of Pin m III had 89% homology to a sugar pine **protein**, Pin 1 I. The anti-photosystem II antibody was used to monitor the annual variation of the extrinsic 23-kDa photosystem II **protein**, The level of the extrinsic 23-kDa photosystem II **protein** decreased slowly as fall progressed and reached its lowest level in December and then increased in early spring indicating that this variation is due to photosynthetic activity of the foliage during the season.

11/3,AB/28 (Item 13 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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04684773 Genuine Article#: UB121 Number of References: 55
Title: THE PR5K RECEPTOR **PROTEIN**-KINASE FROM ARABIDOPSIS-THALIANA IS STRUCTURALLY RELATED TO A FAMILY OF **PLANT** DEFENSE **PROTEINS**
(Abstract Available)
Author(s): WANG XQ; ZAFIAN P; CHOUDHARY M; LAWTON M
Corporate Source: RUTGERS STATE UNIV,COOK COLL,CTR AGR MOL BIOL,POB 231/NEW BRUNSWICK//NJ/08903; RUTGERS STATE UNIV,COOK COLL,CTR AGR MOL BIOL/NEW BRUNSWICK//NJ/08903; RUTGERS STATE UNIV,COOK COLL,DEPT PLANT SCI/NEWBRUNSWICK//NJ/08903
Journal: PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, **1996**, V93, N6 (MAR 19), P2598-2602
ISSN: 0027-8424
Language: ENGLISH Document Type: ARTICLE
Abstract: We have isolated an Arabidopsis thaliana gene that codes for a receptor related to antifungal pathogenesis-related (PR) **proteins**, The PR5K gene codes for a predicted 665-amino acid polypeptide that comprises an extracellular domain related to the PR5 **proteins**, a central transmembrane-spanning domain, and an intracellular **protein**-serine/threonine kinase, The extracellular domain of PR5K (PR5-like receptor kinase) is most highly related to acidic PR5 **proteins** that accumulate in the extracellular spaces of **plants** challenged with pathogenic microorganisms. The kinase domain of PR5K is related to a family of **protein**-serine/threonine kinases that are involved in the **expression** of self-incompatibility and disease resistance, PR5K transcripts accumulate at low levels in all tissues examined, although particularly high levels are present in roots and inflorescence stems. Treatments that induce authentic PR5 **proteins** had no effect on the level of PR5K transcripts, suggesting that the receptor forms part of a preexisting surveillance system, When the kinase domain of PR5K was **expressed** in Escherichia coli, the resulting polypeptide underwent autophosphorylation, consistent with its predicted enzyme activity, These results are consistent with PR5K encoding a functional receptor kinase, Moreover, the structural similarity between the extracellular domain of PR5K and the antimicrobial PR5-**proteins** suggests a possible interaction with common or related microbial targets.

11/3,AB/29 (Item 1 [redacted] om file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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04638530 Genuine Article#: TY716 Number of References: 37
Title: FUNCTIONAL **EXPRESSION** OF URIDINE 5'-DIPHOSPHO-GLUCOSE 4-EPIMERASE (EC-5.1.3.2) FROM ARABIDOPSIS-THALIANA IN SACCHAROMYCES-CEREVISIAE AND ESCHERICHIA-COLI (Abstract Available)
Author(s): DORMANN P; BENNING C
Corporate Source: INST GENBIOL FORSCH BERLIN GMBH,IHNESTR 63/D-14195 BERLIN//GERMANY/; INST GENBIOL FORSCH BERLIN GMBH/D-14195 BERLIN//GERMANY/
Journal: ARCHIVES OF BIOCHEMISTRY AND BIOPHYSICS, **1996**, V327, N1 (MAR 1), P27-34
ISSN: 0003-9861
Language: ENGLISH Document Type: ARTICLE
Abstract: It is our goal to investigate the biosynthesis of galactose-containing compounds in higher **plants**, Searching a database of **expressed** sequence tags, a cDNA from Arabidopsis thaliana (clone 108G20T7) with sequence similarity to UDP-glucose epimerase was identified and further analyzed. The 1356-bp-long cDNA included an open reading frame predicted to encode a 351 amino acid **protein** of 39 kDa. The presumed **protein** sequence showed a high degree of similarity to UDP-glucose epimerase sequences from bacteria, rat, and yeast. Complementation of the Saccharomyces cerevisiae gal10 mutant and **expression** of an active enzyme in Escherichia coli demonstrated that the cDNA encoded a functional UDP-glucose epimerase. The **recombinant** enzyme was purified to homogeneity. It showed a broad pH optimum of 7.0 to 9.5 and a K-m of 0.11 mM. The UDP-glucose epimerase activity was not dependent on the addition of the cofactor NAD(+) and was only moderately inhibited by high salt concentra tions. Tissue-specific Northern analysis showed that the gene is **expressed** in all tissues of A. thaliana with highest **expression** levels in the stems and roots. Eased on Southern analysis, there seems to be a single gene encoding UDP-glucose epimerase in A. thaliana. The cDNA analyzed during this study is the first known to encode a sugar-nucleotide modifying enzyme from higher **plants**. Its availability provides the means to investigate the role of UDP-glucose epimerase for the biosynthesis of UDP-galactose as precursor of galactolipids and cell wall polysaccharides. (C) 1996 Academic Press, Inc.

11/3,AB/30 (Item 15 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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04595573 Genuine Article#: TW103 Number of References: 49
Title: DNA-SEQUENCE ANALYSIS, **EXPRESSION**, DISTRIBUTION, AND PHYSIOLOGICAL-ROLE OF THE XAA-PROLYLDIPEPTIDYL AMINOPEPTIDASE GENE FROM LACTOBACILLUS-HELVETICUS CNRZ32 (Abstract Available)
Author(s): YUKSEL GU; STEELE JL
Corporate Source: UNIV WISCONSIN,DEPT FOOD SCI,1605 LINDEN DR/MADISON//WI/53706; UNIV WISCONSIN,DEPT FOOD SCI/MADISON//WI/53706
Journal: APPLIED MICROBIOLOGY AND BIOTECHNOLOGY, **1996**, V44, N6 (FEB) , P766-773
ISSN: 0175-7598
Language: ENGLISH Document Type: ARTICLE
Abstract: Lactobacillus helveticus CNRZ32 possesses an Xaa-prolyldipeptidyl aminopeptidase (PepX), which releases amino-terminal dipeptides from peptides containing proline residues in the penultimate position. The PepX gene, designated pepX, from Lb. helveticus CNRZ32 was sequenced. Analysis of the sequence identified a putative 2379-bp pepX open-reading frame, which encodes a polypeptide of 793 amino acid

residues with a deduced molecular mass of 88 111 Da. The gene shows significant sequence identity with sequenced pepX genes from lactic acid bacteria. The product of the gene contains a motif that is almost identical with the active-site motif of the serine-dependent PepX from lactococci. The introduction of pepX into Lactococcus lactis LM0230 on either pGK12 (a low-copy-number plasmid vector) or pIL253 (a high-copy-number plasmid vector) did not result in a significant increase in PepX activity, while the introduction of pepX into CNRZ32 on pGK12 resulted in a four-fold increase in PepX activity. Southern hybridization experiments revealed that the pepX gene from CNRZ32 is well conserved in lactobacilli, pediococci and streptococci. The physiological role of PepX during growth in lactobacillus MRS (a rich medium containing **protein** hydrolysates along with other ingredients) and milk was examined by comparing growth of CNRZ32 and a CNRZ32 PepX-negative derivative. No difference in growth rate or acid production was observed between CNRZ32 and its PepX-negative derivative in MRS. However, the CNRZ32 PepX-negative derivative grew in milk at a reduced specific growth rate when compared to wild-type CNRZ32. Introduction of the cloned PepX determinant into the CNRZ32 PepX-negative derivative resulted in a construct with a specific growth rate similar to that of wild-type CNRZ32.

11/3,AB/31 (Item 16 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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02134501 Genuine Article#: KE191 Number of References: 57
Title: **EXPRESSION** OF ANTISENSE OR SENSE RNA OF AN ANKYRIN REPEAT-CONTAINING GENE BLOCKS CHLOROPLAST DIFFERENTIATION IN ARABIDOPSIS (Abstract Available)
Author(s): ZHANG H; SCHEIRER DC; FOWLE WH; GOODMAN HM
Corporate Source: HARVARD UNIV,SCH MED,DEPT GENET/BOSTON//MA/02114; HARVARD UNIV,SCH MED,DEPT GENET/BOSTON//MA/02114; MASSACHUSETTS GEN HOSP,DEPT MOLEC BIOL/BOSTON//MA/02114; NORTHEASTERN UNIV,DEPT BIOL/BOSTON//MA/02115
Journal: PLANT CELL, **1992**, V4, N12 (DEC), P1575-1588
ISSN: 1040-4651
Language: ENGLISH Document Type: ARTICLE
Abstract: The Arabidopsis AKR gene that encodes a **protein** with four ankyrin repeats (a 33-amino acid motif that appears in the 89K domain of the **human protein** ankyrin) was isolated and characterized. A short sequence outside the ankyrin repeats is similar to that of the **protein** of the Drosophila muscle segment homeobox (msh) gene. The **expression** of the AKR gene is light dependent, and transgenic Arabidopsis **plants** with two or more copies of an antisense or sense AKR construct became chlorotic in a developmentally regulated manner. The chlorotic phenotype was genetically transmitted to the next generation, although most chlorotic **plants** produced much less seed. Reduced presence of thylakoid membranes and loss of grana are found in the plastids of chlorotic leaves, indicating that antisense or sense AKR has blocked chloroplast differentiation. This study indicates the importance of ankyrin repeat-containing **proteins**, not only in yeast and animals, but in **plants** as well.

11/3,AB/32 (Item 1 from file: 203)
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02418991 AGRIS No: 2001-006449
Cloning fragment Gamma-chain **human** fibrinogen by Trioredoxin gene fusion
Syukur, S. (Universitas Andalas, Padang (Indonesia)); Schweizer, B.

Conference Title: The Indonesian Biotechnology Conference: Challenges of Biotechnology in the 21st Century
Conference Location and Year: Jakarta (Indonesia), Jun 17-19, 1997
Proceedings of the Indonesian biotechnology conference: vol. 2
Jenie, U.A. [et al.] (Eds.)
Institut Pertanian Bogor (Indonesia)
Publisher: IPB , Bogor (Indonesia), 1997, p. 819-825
Language: English Summary Language: English

It has been very difficult to produce heterologues **human protein** in E. coli cells **expression** system. We tried a new fusion gene **expression** system based on the used of E. coli. Thioredoxin as the fusion partner. Position of DNA N-terminal peptide (340 bp) from gamma-chain **human** fibrinogen was isolated as foreign genes. Thioredoxin vector (3.6 kb) was used to clone foreign genes into multiple cloning site of the **expression** vector. The **recombinant** vector transferred by electrophoration method into competent cells E. coli G1724. The fusion **protein** was analyzed by SDS-PAGE gel. Enterokinase cleavage site allows release of N-terminal peptide of gamma-chain **human** fibrinogen from C-terminal peptide Thioredoxin. The purified gamma-chain will continue to study the binding site domain by using NMR